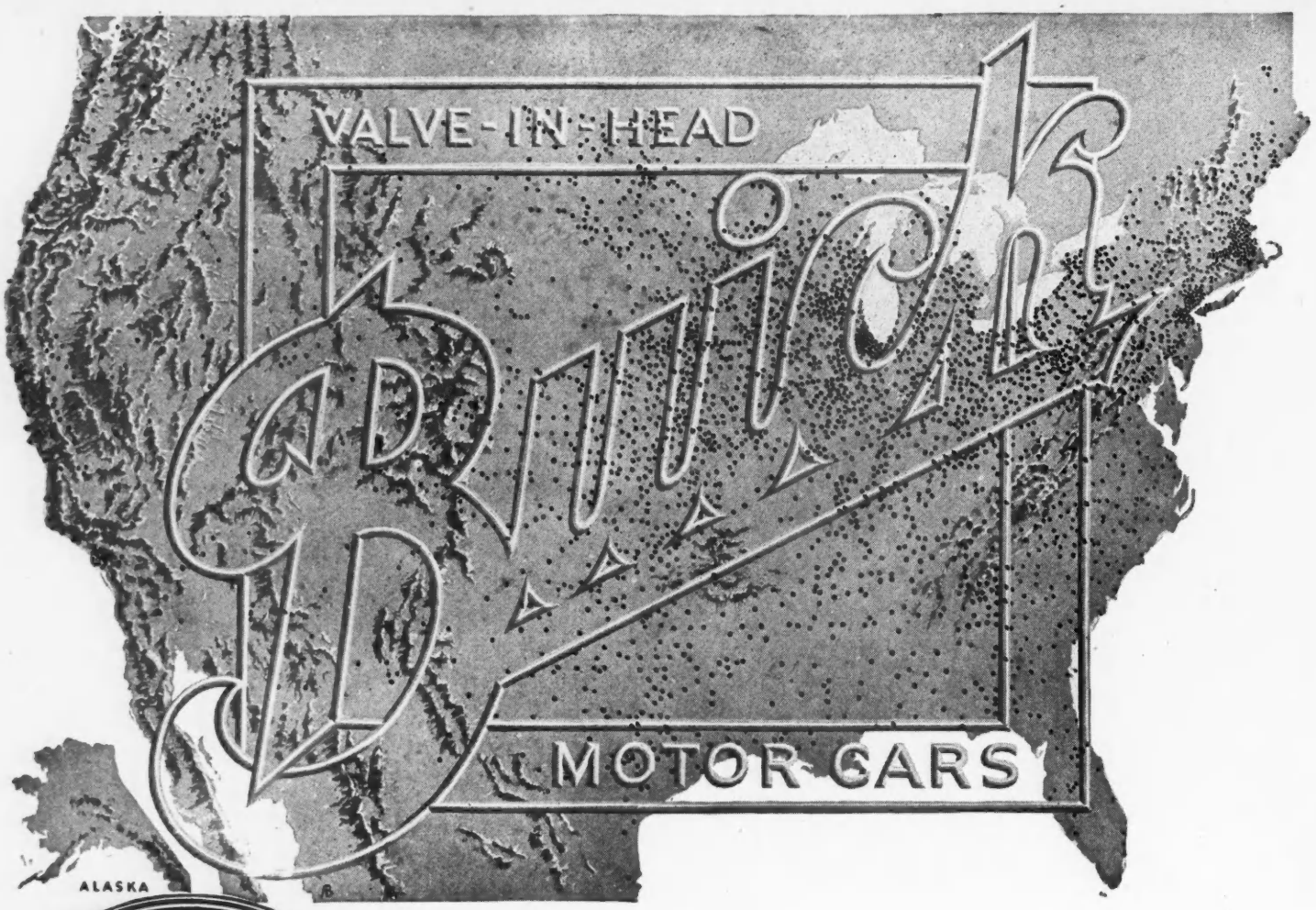
AMERICAN FRUIT GROWER MAGAZINE

Massachusetts
AUG 16 1923
Agricultural
College



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New Method of Controlling Apple Scald

by Charles Brooks and D. F. Fisher

IN the successful marketing of apples the control of scald is a difficult and important problem. Only a small portion of the commercial crop can be consumed at harvest time and the bulk must be stored for varying periods. To hold this fruit in prime condition through its season, and to extend the season when market conditions require it, is an essential feature of the apple industry. In attaining this end scald control has been one of the most baffling and disturbing problems.

Characteristics of Apple Scald.

To those who follow the fruit on the market, scald is too familiar to need description, but to many growers and shippers it is largely a matter of hearsay. It is a disease of stored apples and makes its most rapid development just after the fruit is removed from storage. Apples that appear to be in perfect condition while at storage temperature may become brown and dead looking a few days later. The warming of the fruit is not the real cause of the trouble, but it allows the carrying out of the death processes that were initiated during storage.

Apple scald is confined largely to the green or uncolored part of the apple, but it usually makes a more or less general attack upon the package or lot, rather than confining itself to individual apples. In its mildest form scald consists merely in a superficial browning of the skin but in its later and more severe stages the apple tissue may become brown and dead to a depth of an eighth of an inch or more. The killing of the skin is not only a serious defect in itself but it opens the way for infection by the various rots which soon complete the work of destruction. Most of the rot fungi are unable to penetrate the sound, unbroken skin of the apple but the dead, scalded skin offers no resistance to their attacks.

A trace of scald may merely detract from the appearance of the apples, but it is looked upon with suspicion by the trade and rightly so, for it may develop into bad scald a few days later. When scald appears the apple men know it is hazardous to hold the fruit longer so it is sold as soon as possible regardless of market prices and conditions. Thus apple scald is not only responsible for serious spoilage in an important food supply but it limits the apple season, curtails distribution and makes for uncertainty in apple dealings in general. By increasing the cost of market operations it increases the cost of the apples to the consumer and reduces the returns to the producer.

Remedies for Scald.

Apple scald did not disturb our grandparents and it is not a problem in small scale farm cellar storage. It is a relatively modern disease and came into notice in the early nineties at the time of the development of the modern cold storage plants and the beginning of volume fruit business. The seriousness of the disease made urgent demand for a remedy and led to extensive studies and experiments. In 1903 the late G. Harold Powell and S. H. Fulton made the first publication on the subject (Bulletin 48, Bureau Plant Industry) and summarized their results as follows: "From a practical standpoint the scald may be prevented to the greatest extent by producing highly colored, well-developed fruit, by storing it as soon as it is picked in a temperature of 31 to 32 deg. F., by removing it from storage while it is still free from scald, and by holding it after removal in the coolest possible temperature."

This pioneer work was followed by numerous other investigations and publications by the Agriculture Experiment Stations and by the U. S. Department of Agriculture, all confirming these early results, emphasizing the importance of well-matured fruit, and pointing out the dangers of delayed storage and delayed cooling.

As a result of these investigations and the educational and demonstration work that followed them, the losses from scald were greatly reduced and the storage and distribution phases of the apple industry expanded to an extent that would have been otherwise impossible. But in spite of all that was accomplished scald continued to be one of the greatest handicaps of the apple industry and losses from the disease occurred even with the best orchard and cold storage management. This fact led the Office of Fruit Disease Investigations of the Bureau of Plant Industry, U. S. Department of Agriculture, to undertake further investigations of the problem. The work was started in 1915 and experiments have now been carried out through eight different storage seasons.

A special effort was made to determine why apples remained free from scald in the ordinary farmhouse cellar. Carefully conducted experiments proved that the disease could be entirely prevented by giving the apples plenty of aeration and that this could be accomplished either by passing a continuous air current through the package or by giving the fruit an occasional but more extreme ventilation at various intervals during the first six or eight weeks of storage. While scald control was thus readily accomplished experimentally with small lots of apples, no method was found for furnishing ventilation under commercial storage conditions that was adequate to hold the disease completely in check. Tests along this line, however, showed the importance of openness in the storage stack and the great value of ventilation in cases of delayed storage. They also showed that scald could be greatly reduced by the use of open or ventilated packages such as the ventilated barrel, the basket and especially the hamper.

Oiled Wrappers.

The fact that aeration tended to decrease scald led to a detailed study of the products that were thrown off by the apple and removed by air currents. Withered apples are resistant to scald and it seemed possible that the benefits from aeration might be due to the dryness produced; but the results of investigations indicated that the air currents probably carried away something that was of greater importance in the development of scald than the moisture. It was found possible to entirely prevent scald with good aeration even in practically saturated air while the disease developed in dry air if it remained stagnant.

The respiration of apples is slowed down in cold storage but not entirely stopped. They continue to absorb oxygen and throw off carbon dioxide. Experiments were made to determine the effect of a reduced oxygen and increased carbon dioxide content of the air such as would result from lack of aeration. The results showed that variations in the oxygen content of

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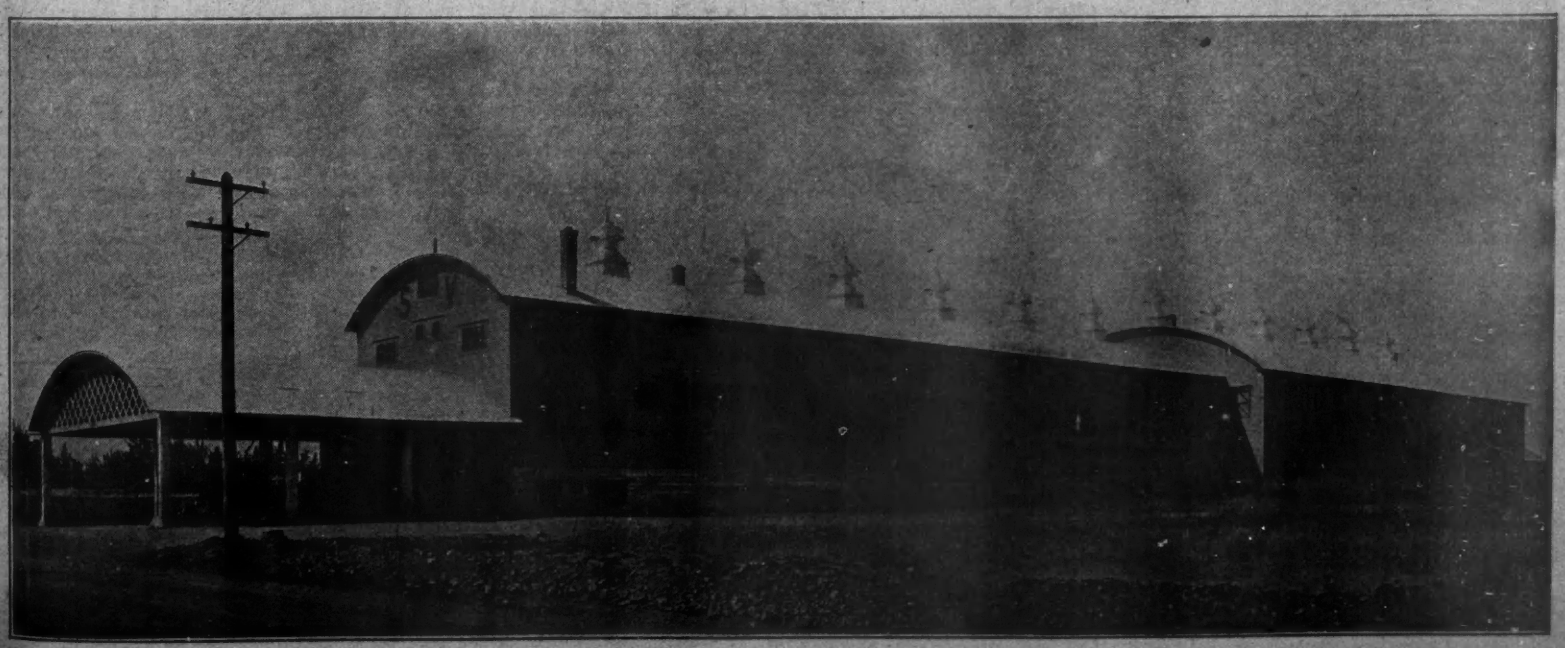


More and better packing houses and cold storage plants are needed for handling our apple crop. The above photo is a typical packing house such as is being built today in some of the valleys in the Pacific Northwest.

Fighting the Pear Psylla With Birds

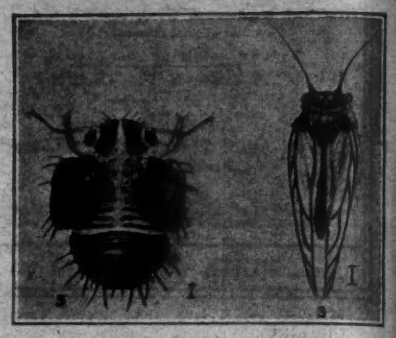
by J. D. Luckett

Typical pear psylla injury on leaves.

THE value of birds as insect destroyers has long been conceded, but some bird students now feel that too much has been taken for granted and that many birds regarded as beneficial may actually be of little, if any, economic importance. Generalizations on the value of birds to agriculture are numerous, but definite information on the real worth of different birds is surprisingly limited, while ways and means of utilizing the beneficial birds to the best advantage have received practically no attention up to the present time. In this connection, a unique experiment has been undertaken by the New York Agricultural Experiment Station at Geneva in co-operation with Prof. E. H. Eaton of Hobart College, a recognized student of bird life and author of "The Birds of New York," in which an effort will be made to enlist the aid of certain birds in cleaning up the psyllas in pear orchards during the winter months, when orchard operations are at a standstill. To accomplish this end, shelters will be provided for the birds in and near the orchards and special feeding will be resorted to in an attempt to attract the overwintering birds to the orchards and to keep them there when once they have found shelter and an abundance of food. Animal fat, such as suet, and sunflower seed will be the bill of fare provided. It is the opinion of the Experiment Station workers that an abundance of this kind of food, easily obtainable, will attract the birds, and that a desire for variety in the diet will then lead them to seek out the hibernating insects on the nearby pear trees.

Psylla a Troublesome Pest.

Pear orchards are constantly affected with a tiny insect known as the pear psylla. In general appearance, these insects resemble very closely the commonly known cicadas or "twenty-year" locusts, although, of course, they are much smaller. The insect passes through the winter in the adult form and seeks shelter in the cracks and under the rough bark of the pear tree. On warm days they come out to sun themselves and are then an easy prey to a hungry woodpecker or chickadee. The adult psyllas are present on the trees in large numbers from September to April. During that time, fruit growers find it impracticable to undertake drastic spray or dust operations which would be necessary to combat the pests successfully at this season.



Young psylla or "hard shell" and overwintering adult, both enlarged.

The insects themselves are one of the most serious pests of the pear, sucking the juices of the tree and killing it within a comparatively short time if left undisturbed. Badly infested trees take on a sickly appearance early in the season; the

(Concluded on page 11.)

A bird house in place in pear tree.

A load of typical bird houses for the pear orchard.

Parasites Help to Save the Citrus Fruits

by Christine Emery

WHEN the citrus growers of California awoke to the fact that their long and valiantly fought enemy, the Black Scale, was proving immune to the supposedly deadly treatments of fumigating gas, they cast about for some other means to cope with what was a really desperate situation, and, finding that a similar outbreak of scale had been controlled in Africa by means of the "application of natural enemies," they caused a consignment of the tiny insects known as Scutellista Cyanea to be introduced into their groves. It soon became evident that hatching, on a normal ratio, about one crop of young each year and eating only the eggs of the scale which are deposited at various seasons of the year that the Scutellista, although making an appreciable reduction in the total production, nevertheless permitted a large percentage of the young scale to hatch and reach maturity and, at best, persented only a temporary relief.

Imported From Australia.

The State Department of Agriculture came to the aid of the growers and in 1919 brought from Australia a shipment of Apnycus Lounsburyi, an internal working parasite whose prowess in destroying scale of established growth speedily proved it to be worthy of a most extensive and thorough trial in this new and fertile field, especially so when supplemented by the efforts of Rhizobus Ventralis, or Black Lady Bug Bettle, also an importation of Australian origin, for the twain apparently approving climatic conditions in our southwest, quickly "got down to business" and showed their ability to successfully exterminate black scale in its middle and adult stages.

Field experiments and breeding tests carried on at the Limoneira Ranch, at Santa Paula, Calif., were conducted with such gratifying success and this precious triad of "devouring, protective parasites"—Scutellista, Aphycus and Rhizobus—cleaned the trees so effectively that fumigating was safely withheld for two years in order to give ample opportunity to show the efficacy and superiority of the allied and voracious little workers.

Cultural modes being somewhat different in the southwestern portion of the state, H. S. Essig, a prominent entomologist who performed this pioneer work so efficiently at Santa Paula, was induced to assume supervision of the plant of the San Gabriel Valley Pest Control Assn. which was to be built at Lamanda Park, a section of East Pasadena.

Mr. Essig, following out this formula for the most successful handling of this laboratory work, has housed an exceptionally praiseworthy "demonstrating nucleus" in the well-planned buildings that comprise the insectory and, in less than one year from the date of its inception, has distributed more than a million scale eaters to the members of the six associations who comprise the "growing end" of the industry west of the San Gabriel River, and represent a reclamation area that totals about 5,000 acres.

Within the confines of the larger building, which has a floor space of 16 by 120 ft., with a cellar 16 by 40 ft., and the upper floor arranged in a series of six compartments, or rooms, is a mammoth nursery where these parasites which will control the black scale are being made to justify their existence. The width of the building makes it possible to arrange two rows of racks along the eastern and western exposures and these racks are filled with cuttings from trees badly infested with scale, there-

(Concluded on page 13.)

Trimming infected pepper boughs that are heavily incrusted with scale.

Prune Drying in the Pacific Northwest

by Ernest H. Wiegand

THE acreage planted to prunes in the Pacific Northwest is decidedly on the increase. In Oregon there are about 30,000 acres of trees. Comparing the figure to approximately 180,000 acres in California, there is every reason to believe that the industry has just begun in this state. From the above combined acreage about 250,000,000 lbs. of fruit were dried, of which amount Oregon dried 50,000,000 lbs. This indicates that the yield of the prune crop in Oregon is good, which fact leads to the assumption that the crop is highly adaptable to the growing conditions of the state.

Sun drying is out of the question in the Northwest because of climatic conditions, therefore artificial methods must be resorted to. The natural draft drier, so popular in the last few years, is being replaced by the mechanical draft drier. A new method of circulation has been evolved by the Oregon Agricultural Experiment Station and several years of testing under all conditions in the laboratories of the Experiment Station has proved its adaptability. The installation by numerous driermen last year has definitely decided its practicability.

Standardization.

Italian prunes will be a source of prosperity to the people of the state just to the extent of the market demand. To create a demand a standardized product must be produced. A standard product is a guaranteed quality product. Brokers, commission men, wholesalers, retailers and consumers all call for a product which retains its identity from year to year.

A good quality prune carefully handled and dried under controlled conditions would insure such a uniformly high quality dried or standardized product.

Sanitation.

Several generations have passed since commercial canning and drying were first practiced and still there remains some hesitancy on the part of the consumer to eat "dried products." No doubt there was ample reason in the early days for this hesitancy to use any commercially prepared food, but there is no longer a reason for this hesitancy as far as cleanliness is concerned as in the more modern plants no expense is spared in handling the product under sanitary conditions.

The artificially dried prune has every chance possible to be a clean product. Only ordinary precautions would insure this—all packing boxes used in the field should be clean and the pickers be warned against putting rotten fruit with the good. When delivered to the drier, the prunes should be washed in clear, fresh water and spread on clean trays for drying. If lye solution is used it should be changed at intervals to prevent stagnation and the tank thoroughly washed.

After being dried the fruit should be kept from coming into contact with dust and dirt by providing dust-free storage bins to hold the fruit till packed.

Grading, Dipping and Traying.

Grading before drying is not universally practiced. There are many advantages in using a system of grading the fruit. A more even dry can be obtained by having fruit of uniform size on the tray.

The use of lye for dipping prunes preparatory to drying facilitates drying to some extent. In mechanically operated air driers the decrease in drying time is approximately four hours compared to the drying time of undipped fruit. One to two per cent lye solution at boiling point is the proper solution for dipping.

The practice of using water, hot or cold, for washing fruit is a good one and produces a good quality product.

Many types of trayers are manufactured to dip and tray the fruit. All of these have merits. The shaker system for spreading the fruit on the trays is the principle generally used in all makes. The metal screen drying tray is most common in the Pacific Northwest, while the wood slatted tray is used to a greater extent in California. Wood trays are preferable if the fruit is to be sulphured.

Drying.

There are two distinct types of prune driers, the natural draft and mechanical draft drier. The natural draft drier is a great improvement over sun drying and is especially applicable in countries where rainfall is liable during drying season. The sani-

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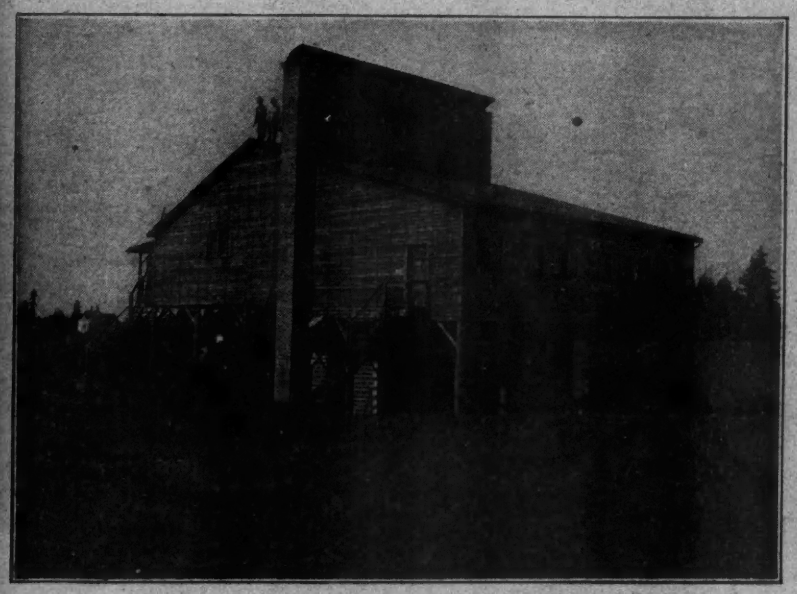


C. R. Widmer dryer at Albany, Ore. Remodeled Oregon Tunnel type.

Prune dipper for the lye dipping of prunes.

Hothouse Grape Growing in England

by A. G. B. Bouquet

GRAPES are a fancy fruit in the British Isles and are highly regarded as a dessert table fruit. Grown under glass, they reach the highest quality, and sometimes fetch fabulous prices early in the marketing season.

The area in which grapes are grown commercially in large quantities is more or less localized, the greater portion of them being produced in the county of Sussex, near Worthing, in the southern part of England. One finds the grape industry well developed and highly specialized and many greenhouse ranges devoted exclusively to this fruit.

The greenhouses used for forcing are usually narrow, approximately 20 ft. wide, and vary from 150 to 200 ft. long. The walls are quite low, 1½-2½ ft. In many cases there is a group of houses, connected with low gutters. The vines from one house very often grow into the adjoining one and it is not uncommon, therefore, to find two houses which are grown from the planting in one greenhouse. The root growth is extensive and when the vines have remained in the houses for a number of years they reach a large size in diameter of the stem and have a wide-spreading root system. As a general rule the roots are first planted 2 to 3 ft. apart on each side of the house. During the early growth of the vines tomatoes are often planted as an intercrop, sometimes as many as three crops of tomatoes being harvested before the entire space is given over to the grapes.

In order to hold the rods or individual branches of the plants, wires, running widthwise and lengthwise of the house, are connected with the roof. There are commonly four to six rods to each plant and the vines, as they are trained, meet at the ridge of the greenhouse.

There are three widely grown varieties. The Alicante bears heavily but is not such a fancy grape on the market as the other two sorts. Black Hambros rank second in yield and also in market value, while the Alexandria Muscats, although yielding the lowest of the three, are the finest in quality and bring the highest price.

The thinning process is necessary and quite slow and expensive. A greenhouse of average width, 150 ft. long, was thinned by four people who took two weeks to complete the job. Reference is, of course, made here to the thinning of the bunches of grapes in order to obtain the proper size of those which are allowed to remain. Usually two-thirds of the grapes of a bunch are removed, as many as 300 grapes often being taken from a single bunch in the thinning work.

Pruning of the vines consists in thinning back after the season is over to three or four buds on each rod, then later on before the growth is forced, to one bud.

Aeration of the houses is most important. The temperature is comparatively cool during the period of ripening while through the early growth there is more forcing and consequently less air than later.

Red Spider is the greatest insect enemy but growers have been considerably helped in the control of this pest by the research station conducted and supported by the British Glasshouse Produce Marketing Ass'n, Ltd., consisting of a majority of the growers.

Harvesting and Marketing.

In regard to the harvesting and marketing of this fancy crop, some vines in good condition are yet bearing in their 25th year. The first crop of any importance is obtained when the vines are four years old. Each plant will usually produce 14 to 18 good bunches of grapes, weighing upwards from 1½ to 2½ lbs. apiece. In one greenhouse visited by the writer, which was 20 by 130 ft., 4000 lbs. of marketable grapes were obtained. Alicantes frequently yield 40 lbs. to the vine. The bunches of this variety are round and more compact than those of the Muscats, which are long and comparatively narrow.

The season for marketing opens in May and during the early part of the selling some of the best grapes bring as high as 30 shillings, equivalent to $6, per lb. Later on prices of Alicantes vary from $1 to 30 and 35 cts. per lb., while the Hambros and Muscats sell for $1.50 down to 50 cts., depending largely on the time of the year. When the writer left the island, prices were around 75 cts. per lb. at the fruit store.

As may be expected, extreme care is used in cutting and packing this delicate and high priced fruit. Two baskets are used, the outer one corresponding to a carrier for the two smaller baskets inside, which usually hold 10 to 12 lbs. of grapes apiece. The inside baskets are made to fit snugly in the strong outer wicker carrier. Most of the grapes are handled in wholesale fashion by the dealers in Covent Garden. Smaller baskets are also used by growers holding 5 lbs. and these are sent to market without any carrier, but the top of the baskets are well wrapped with strong paper.

There are over 2000 acres in the British Isles devoted to the forcing of fruit and vegetable products.

Successful Spraying With Lubricating Oil

by T. J. Talbert
University of Missouri

DURING the past three years, the Bureau of Entomology of the United States Department of Agriculture has been testing emulsions of engine oils with potash-fish oil soap, with the idea of finding a cheap and efficient substitute for strong lime-sulphur. The work has been carried on at Bentonville, Ark., mainly under the direction of A. J. Ackerman. Substantial progress is being made apparently and the fruit growers are thus far very well pleased with the results which have been obtained.

The Government Formula.

The formula used in Florida, and recommended by Mr. Ackerman for use in Arkansas, Southern Missouri, and Illinois is as follows:

Engine oil	2 gal.
Water	1 gal.
Fish-oil soap	2 lbs.

Three gallons of emulsion are used in 100 gal. of water, giving a concentration of 1.77 per cent engine oil. The soap is dissolved in water, and placed in an iron kettle or other receptacle, with the oil, and heated to boiling. After removal from the fire, the mixture is pumped twice through a pump giving at least 60 lbs. pressure. This should give a permanent stock emulsion, which can be stored, shipped, etc., and added to water in the proper proportions when ready to spray. If hard water is used, it must be "softened" by using a ½-½-50 Bordeaux mixture in the tank before adding the emulsion. It may also be softened by adding glue, flour, starch, casein, and other materials to the tank of water. The same materials that "soften" the water will also "stabilize" the oil emulsion so that it can be used with lime-sulphur solution.

The oils which have been used are cheap engine oils, and so-called "floor oils." Some of the brands on the market today are Paraffin Diamond, Red Engine oil, Nabob oil, and 180 Red Neutral. Potash-fish-oil soap is used as the emulsifying agent.

Sunoco spraying oil is self-emulsifying. It is not necessary to use fish-oil soap to make its water emulsion permanent, as it mixes cold with water.

Missouri's Way of Making Lubricating Oil Emulsions.

Our method is cheap and easy and we consider it in some ways better than the government formula. For instance, we do not have to heat the ingredients at all, and the cost is 12c to 13c a gal. for an emulsion containing 67 per cent oil.

More than 300 bearing fruit trees in the Experiment Station Orchard have been sprayed with these emulsions, made without heat or soap. Our experience leads us to believe that the emulsions will be of great service and value to the fruit growers of Missouri. The formulas found most successful at the Missouri College of Agriculture are as follows:

	Formula 1.	Formula 2.
Engine oil	2 gal.	2 gal.
Water	1 gal.	2 gal.
Copper sulphate (blue stone)	¼ lb.	½ lb.
or		
Iron sulphate (copperas)	¼ lb.	½ lb.
Burned lime	¼ lb.	½ lb.

Formula 3.		Formula 4.	
Engine oil	2 gal.	Engine oil	2 gal.
Water	1 gal.	Water	1 gal.
Kayso	4 oz.	Saponin	4 oz.

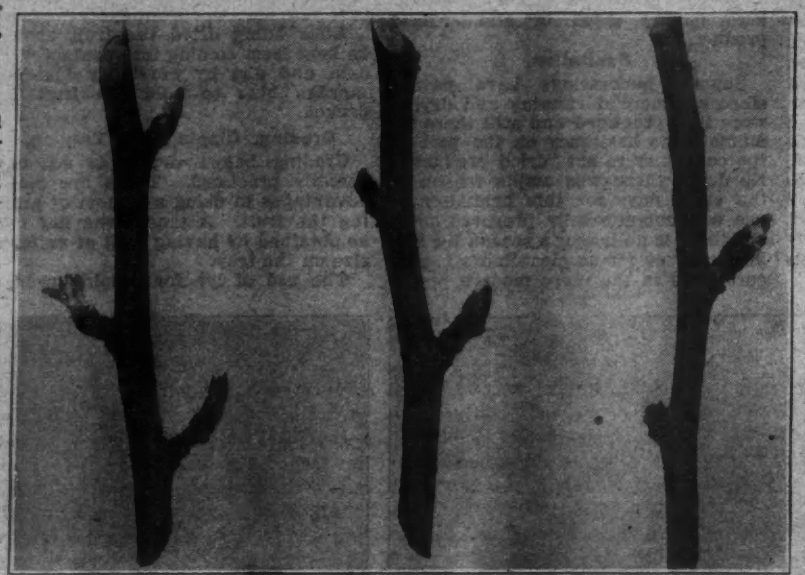
How to Make the Emulsions.

Emulsions with copperas and lime are made the same way as those with Bordeaux mixture. Merely substitute copperas for blue-stone in the directions given below. First make a stock solution containing 1 lb. of bluestone to 1 gal. of water. Place say 25 lbs. of bluestone in a burlap sack, and suspend over night in a barrel containing 25 gal. of water. The bluestone requires 12 to 20 hours to dissolve. In another container, such as one-half of a lime-sulphur barrel, place 25 lbs. of burned lime and slake it. Then add water to make 25 gal.

If it is desired to use 200 gal. of 2 per cent oil spray, emulsified according to formula No. 1, put 4 gal. of oil in a half barrel or other container, then add 2 qts. of the copper sulphate solution and 1 gal. of water. Stir up the lime, and add 2 qts. of the milk of lime. Mix the oil and water, etc., by pumping the mixture back on itself, using a coarse spray. After a minute's pumping, reduce the opening in the nozzle until a fine spray is obtained and pump the emulsion into another container. Then pump it back again. The emulsion would probably be satisfactory with one pumping, but it is generally best to give it two. The finer the spray and the harder you work, the better emulsion you get. If you want to let the spray rig do the heavy work just put the suction hose and a hose from the return line into the half barrel containing the mixture and pump it back and forth a time or two. In this method, it is essential that you do the pumping immediately after mixing the various materials. Only freshly made Bordeaux or Iron Sulphate—Lime—mixture will act as a good emulsifying agent.

To make an equal amount of emulsion by means of Kayso, take 8 oz. of Kayso, make into a paste by slowly adding water and stirring until you have added 2 gal. of water. Then add this to 4 gal. of oil, mix, and pump as before. No haste is necessary here. To make an emulsion according to formula No. 4, substitute 8 oz. of saponin powder, or the extract from ½ lb. of soap bark, for the Kayso.

The emulsions so made are ready for use with any kind of water or with lime-sulphur. They may also be put into tanks or barrels which have contained lime-sulphur, Bordeaux, or oil. A large enough quantity of stock emulsion to last a day or two may be made by means of the power sprayer. The Kayso emulsions will keep a long time. Oil separates out of the other emulsions after a few days, but can be re-emulsified by pumping again. All oil emulsions and miscible oils stored in quantity should be thoroughly stirred before measuring out for use.



Delayed dormant stage on apple, when aphids are readily killed by a 2 or 3 per cent oil emulsion spray.

Making use of the suction hose and the spray gun to emulsify the oil.

Against San Jose Scale.

The miscible oils, especially Scalecide, are usually considered to be more efficient than strong Lime-sulphur. Results obtained in co-operation with the Department of Entomology, Missouri Agricultural Experiment Station indicate that the engine oil emulsions in concentrations as low as 2 per cent are not inferior to the standard sprays for San Jose Scale. The cold emulsions have given as good results as those made by the government formula. Counts of over 3,000 scales which had been treated with 2 per cent oil, emulsified by means of Bordeaux, Kayso, and saponin, showed 96 to 99 per cent kill. Lime-sulphur, 1-7, under our conditions, was a little less efficient than the oils. Emulsions of Diamond Paraffin oil and Red Engine oil emulsified according to the Government formula, have been compared under field conditions with the same oils emulsified cold by the methods described above, and with lime-sulphur. In general, we can say that 2 per cent engine oil, emulsified by the methods described, has been successful in killing San Jose Scale.

Against Aphis.

Nicotine sulphate is the standard spray for the control of aphids. Strong lime-sulphur at the delayed dormant period, kills many of the aphids, but in general, it is considered best to add nicotine to the spray to get more complete control. Several sprayings were made with the various emulsions mentioned above, on trees heavily infested with the grain aphis.

Counts of insects made after spraying, and our observations, as well, indicate that 2 per cent or even 1 per cent oil, emulsified by any of the methods described will kill the aphids when they are thoroughly wet by the spray. When the buds were opening, and the lice were clustered on them and unable to crawl within, a high percentage of kill was obtained. Spraying with a 2 per cent oil killed 96 per cent of the aphids present. As soon as the buds developed enough to allow the lice to crawl down between the leaves, it was hard to hit them all with the spray. Much poorer control was obtained at this stage of the development of the fruit buds. After the blossom buds had separated into clusters, it was easier to hit the lice, but still a large number apparently survived the oil spray. Observations indicated that more aphids were killed when a power sprayer was used than when a hand sprayer and low pressure were employed.

Injury to the Trees.

We have observed no injury following dormant applications of oil in concentrations up to 20 per cent. Continued applications of oil, year after year, may result in injury, even though one year's spraying has no effect. However, we expect no cumulative injury from the continued application of 2 per cent oil, for this reason: Orchards have been sprayed for years with Scalecide, Dormoil, and other miscible oils in concentrations up to 10 per cent, without any permanent injury resulting except where the spray is applied before a cold period. These patented sprays contain from 85-90 per cent oil, probably of the same character as the engine oils used now. If no cumulative injury has resulted from the use of miscible oils, we would not expect any from the application of 2 per cent engine oil.

When used as a delayed dormant spray, there was a little burning of the edges of the young leaves, about the same as the lime-sulphur gives. In the cluster-bud stage, after the leaves are out ½ to 2 in., there is more burning. Some of the sprayed leaves stopped growing, others turned yellow, and many of the small leaves fell off. When oil was applied with 3-4-50 Bordeaux and arsenate of lead, the injury was less than when applied alone. No injury to fruit buds was observed except with strong applications, even when oil was used in the cluster bud spray.

Our results for one year indicate

(*Concluded on page* 19.)

Our Editorial Comment

Selling the Crop

NEARLY all fruit growers at this season of the year anxiously scan the crop reports to thus determine what chances there are to secure a satisfactory price for the fruit crop.

The crop this year on the whole is large. That is especially true in the case of apples, where the crop is now forecasted as slightly in excess of the large crop a year ago. While the peach and pear crops are not as large as those of last season, they are, nevertheless, sufficiently large to meet average demands.

There are, however, some bright spots on the horizon for the fruit grower. In the first place, the crop is pretty well distributed and is not congested in one or two districts. Business conditions in the large centers of population are unusually good, practically no people are out of employment and the purchasing power of the consumer is large.

The early soft fruits up to the date of going to press are bringing fair values and there is not the glutted market conditions of such fruits which existed a year ago. Whenever there is a period of several months of glutted market conditions for peaches, pears, plums and melons, it is always reflected on the market for apples, oranges and similar fruits. Again, the buyers of fruit as a class did not lose money.

Another factor which will be an important one this year is that the eastern crop is two or three weeks later than normal while the Pacific Coast crop is fully three weeks ahead of normal. This will give a wider spread between the two districts than usually occurs and will tend to avoid market gluts.

On the other side of the question we would urge all growers to do everything they possibly can to obtain a wide distribution of the fruit crop, to avoid doing anything which will contribute to the mere dumping of a large tonnage in our main centers of consumption. Year after year we see the great bulk of the Bartlett pear crop shipped to New York, Chicago, Boston and Philadelphia, with a much less tonnage to such cities as Detroit, Cleveland and Pittsburgh. Many good carload markets are not supplied. More carload markets must be developed for our fruit, more precooling plants should be established and better facilities for cold storage should be provided in order that the fruit may arrive on the market in the best of condition. Apple growers should be interested in naming a price early in the season which will start the apples into the channels of consumption. If this is done the chances are that a very good season will be experienced.

Above all it must be borne in mind that in a season like this quality counts, poor fruit will be a drug on the market. Growers should thin, spray, cultivate or otherwise retain soil moisture in order that the fruit produced may be of good size, clean and attractive. Such fruit will prove profitable, the other kind will not.

Apple Scald

APPLE scald is the great dread of the man who owns apples in cold storage plants, and, in fact, with some varieties like Grimes scald will even develop while the fruit is in transit. The leading article this month deals with apple scald and was prepared by Messrs. Fisher and Brooks, two men who have been investigating this subject for months and who are the best qualified men in this country today to deal with this topic.

Apple scald is something which was unknown until the days of commercial storage and the handling of a big apple tonnage. Our forefathers rarely experienced it in the old storage cellars. Early investigation showed that immature fruit or poorly colored fruit was more subject to this disease than well colored, properly matured specimens. To avoid scald, investigations seem to show that fruit should be well colored, moved promptly to cold storage temperatures of 31 to 32 deg., removed from storage before scald develops and after being removed from storage kept in a relatively cool temperature.

It was thought that a carbon dioxide gas was responsible for the development of scald. Later investigations have shown, however, that it is the gases which have to do more with the odors and flavors of fruit, such as amyl acetate, amyl formate and acetaldehyde. Investigations have shown, however, that an oiled wrap will absorb these gases and thus prevent the development of scald.

It is interesting to note that the investigations show the great value of ventilation and air circulation in our cold storage plants. Is it possible that in building our cold storage we have thought only of lower temperatures and have neglected to provide for proper ventilation, air circulation and humidity control? Future investigations will throw much more light on this subject. Meanwhile, the oiled wrap is helping to keep fruit from scalding from four to seventeen weeks longer than was otherwise true and in some cases fruit has been carried over in good condition until a second season. The use of the oiled wrap will mean that the fruit will be kept in better condition as regards scald and a less percentage need be crowded on the market early in the season and a better early price can be established for the tonnage. While primarily developed in connection with box packing, it can be very easily adapted to basket packing and with very fine fruit it would even pay in barrel packing.

Your Experiment Station

EVERY state has at least one central experiment station and often several sub-stations. We hope that our horticultural readers visit their home experiment station at least once a year and that they are very familiar with the valuable work which their experiment station is doing. We recently had an opportunity to visit the Ohio Experiment Station at Wooster, Ohio. We have in a previous issue commented on the fine work which the horticultural and allied departments such as entomology and plant pathology, are doing in that institution. Every visitor is strongly impressed with the splendid fundamental soil fertility experiments being conducted by that experiment station. The value of crop rotation, the value of certain fertilizers in maintaining proper fertility of Ohio soils, and experiments in forestry are very fascinating. To one interested in the animal husbandry line, very attractive experiments are being conducted in cattle and hog breeding and dairy production problems.

Visit your experiment station. It is your duty to do so. You will receive very courteous treatment and you are always more than welcome. You will find the visit to be very profitable to you in many ways and you will learn many things which will help solve some of the problems against which you are contending.

A New Book

"CO-OPERATIVE Marketing: The Golden Rule in Agriculture" is the title of a new book on marketing and co-operation, written by Herman Steen and sold through the American Farm Bureau headquarters at Chicago for $1. This low price is placed on the book despite the fact that it is well bound, printed on good paper and contains 356 pages. We give a review of this book elsewhere.

This treatise is worthy of editorial comment because of the fairness with which the author has treated the subject. While one realizes that Mr. Steen is a true friend of co-operation, nevertheless he has pointed out the weaknesses as well as the strong points of co-operation and has cited types of failures and has explained why they have occurred.

This book contains a very good history of the co-operative movement in this country extending from ocean to ocean. It deals with the co-operative movement as it touches every phase of American agriculture. The book is especially attractive in that it is simply written, the words can all be easily understood. Mr. Steen took many extensive trips, visited over 100 co-operative organizations in obtaining material to prepare this book, and it is a result of these actual investigations which he personally has made. The book is exactly what every student in co-operation is looking for and should be in the hands of all our readers.

Black Walnuts

WE are giving considerable space in recent issues to the black walnut. As boys we can all remember the black walnuts, butternuts and hickories which were scattered all through the east. These trees are fast disappearing, yet there are millions of acres of land in this country especially adapted for the establishment of small groves of timber and nut trees. Fine specimen trees could be planted around the buildings to produce nuts and shade. The walnut trees are beautiful trees, they are long lived, they are hardy. They mean much to the future of our nation in building up national resources along the lines of timber and food supply. Let us plant more nut trees. In some sections it will be the English walnut, pecan and the filbert, but in the greater part of the United States we must fall back on the hickory, black walnut and the butternut.

Your Letters

WE receive too many letters merely signed by initials. It is impossible to answer nearly all these letters as we can only find a place to answer a few of them in our columns. We want to urge our subscribers to sign their letters fully. If in case the letters are published and they simply want us to use the initials, if they will so state that will be the method which we will follow; but we must urge you to sign your letters in order that we can render to you the service which you desire. We hope later on to be able to put in departments in which we can use more of the letters which we receive from our subscribers, but in all cases we desire the full name of the letter writer.

Do not hesitate to write to us whenever you feel we can be of service to you. If we do not happen to have the information you desire, we will try and look it up for you or we will put you in touch with parties who can give you the desired information. Again, whenever you think you can be of service to us, we shall be very glad to hear from you—we are open to suggestion. We also are always glad to receive letters from subscribers telling us about their experiences in growing and marketing fruit. We may be able to pass on these suggestions to other growers and thus be of greater service to the large family of fruit growers.

The Proper Handling of Apricots

by James Edward Hungerford

EVERY grower should be prepared to take care of his apricot crop when it is ready by having adequate equipment. Drying equipment is an apricot grower's best assurance of a fair price for fruit sold green, and is really the only assurance that his fruit will be taken care of. The investment in drying equipment will pay a bigger dividend than any other investment on the ranch.

Getting the fruit into the cutting shed in proper shape is one of the most important operations in the drying of apricots, and if this is accomplished, then everything connected with the drying end will run along smoothly.

Fruit should come into the shed clean, above everything else, and ripe, but firm. It is hard to get fruit into the shed in just the right shape, but this can more nearly be accomplished where fruit is picked by hand. Handpicking sounds almost impossible to growers in some districts who have always practiced shaking the fruit to the ground—and where trees are of extraordinary size the topmost fruit might have to be shaken—but in most orchards practically all the fruit can be handpicked.

Handpicking Pays.

Growers who handpicked their fruit say that the gain in weight they have on their dried fruit alone will pay the difference in the cost of picking. This gain in weight is caused by the elimination of green fruit in the handpicking. Where fruit is shaken to the ground considerable green fruit is bound to come down with the ripe, and dried green fruit makes an almost worthless article and weighs very little. Besides the greater weight in fruit picked by hand, it is more uniform and is cleaner than that shaken down, and there is practically no punctured or bruised fruit.

Those who have been able to get fair results from shaking are generally favored by the condition of their soil and are very careful about their work. They often shake the fruit the night before picking is done so it will not have to be done in the early morning when the 'cots are wet.

Cut As Soon As Possible.

Fruit should be cut as soon as possible after picking. Each box of fruit should be weighed and stacked in rows. There are two systems used in weighing the boxes. One is where the actual weight of the fruit is written on a card and put in the box. The other is where all the boxes are made to weigh the same. In the first case the pitter keeps the tags and is paid for this weight, and in the second case the pitter's ticket is punched when given a box. Some punch the pitter's ticket on the empty boxes, but it is best to punch the tickets on the full boxes, then the punches on the pitter's tickets will more nearly tally with the number of boxes given him.

Weighing the fruit accomplishes two things. First, you know how much fruit you are putting through the shed, and second, the pitters are satisfied in regard to the number of pounds they are cutting and there is less chance for a pitter to be favored with a short box by the shed man. Setting fruit in rows eliminates favoritism also, as the next box in the row always goes to the next cutter who is out of fruit.

Pitters should be instructed to cut the fruit all the way round and not tear it apart, also to lay the halves level on the trays so the juice will not run out when sulphuring. Pitters sometimes get the habit of leaning one-half against the other, and this causes the fruit to stick together when the syrup runs out in sulphuring. Also there is quite a loss in weight when the syrup runs out.

If the two halves of the fruit are not completely severed, when the fruit is graded they stick together and go into the slab instead of dropping into a better grade, where they would have dropped had they been severed. Pitters should not be allowed to injure the fruit by pushing the pit out of the fruit with their knives.

Some pitters have a knack of pushing the pit out of the stem end of the fruit after cutting all the way round, injuring the fruit very little, if any. But the ordinary pitter who "slip pits" is cutting down the grade and losing money for the grower. Fruit should be spread on the tray as it is cut and not thrown in a pile on the tray and spread afterwards.

Fruit should be pitted from a pan. Then throw the pits from the pan into a separate box kept for that purpose. It is good practice to instruct pitters to put all the fruit from their boxes on trays regardless of the condition of the fruit, as otherwise some pitters may throw away fruit that should not be thrown away. Pitters should not be allowed to pour the fruit from their boxes onto the tray if the fruit has been picked off the ground. Pitters should be clean about their work and wash their pitting pans and hands often. Pits should be kept free from fruit and spread in the sun to dry. Stir them often and be careful that they do not mold. When sacking pits see that they are free from dirt.

Improper Sulphuring.

Improper sulphuring of apricots has probably been the cause of more poor fruit than anything else. Sulphur the fruit as soon as possible after it is cut. If there is any delay in getting the fruit in the sulphur house promptly after cutting and after the natural moisture has dried off, it should be given a salt water sprinkle before sulphuring or at least a sprinkle of fresh water.

Those who use salt water maintain it gives the fruit a better color, and makes a better quality fruit and more weight. Trays should be stacked in such a way that the sulphur fumes will easily have access to all the fruit. Be sure and use plenty of sulphur and give sufficient air so it will burn freely. It is generally estimated that it takes about ten pounds of sulphur for one ton of green apricots. Fruit should be left in the sulphur house not less than three and one-half hours, and longer if necessary. At any rate, do not set fruit out in the yard until properly sulphured, and it is not properly sulphured until the fumes of the sulphur penetrate through the meat of the fruit. By cutting through the fruit you can see just how far the fumes have penetrated. If the cups of the fruit are pretty well filled with syrup, it is a good indication it is properly sulphured. Be sure to set your fruit from the sulphur house directly in the sun in order to get the best color. Better give the sulphur a little ventilation and leave the fruit in over night than set it out too late for the sun.

Fight Dust.

Always arrange your work in the drying yard so as to get just as little dust on the fruit as possible. Do not lay your trays on the bare ground if you can possibly avoid it, but if you have to do this, rest one side of the tray on the side of the one next to it, slanting the tray toward the sun. This will save some space in the yard besides keeping the trays and fruit cleaner. Racks are best to lay trays on and make the work easier. An alfalfa makes a good dry yard. Should fruit become wet while on trays, be sure to resulphur as quickly as possible while yet moist, as this will retain color. Trays of fruit should be stacked just as soon as possible. A day in the sun is sufficient in some localities. When to stack will depend on weather conditions and the tray supply, but cure the fruit in the stack as much as possible. Break the trays in such a way in stacking that the air will pass through freely.

Fruit should be taken up and binned when it is dry enough so it will not stick together. Some growers test by squeezing a handful together, and if it falls apart readily, they consider it ready to bin. So much grief can come from binning fruit when it has too much moisture that it pays to take no chances in this regard in attempting to gain a few pounds in weight. It is almost impossible to grade sticky fruit in the packing plant, as it goes over the grader in chunks and sticks together, and this additional grading cost to the grower, together with the loss in his grades, will more than offset the few pounds gained.

In scraping fruit, it is good practice to scrape any off-colored fruit to one side and keep it separate from good fruit. Also do the same if you come across a tray or half a tray of slabs. Off-colored and slabby trays show up very distinctly in the yard and can easily be scraped separately. This doesn't mean that it is necessary to hand-grade fruit in the yard, but that it pays to be on the lookout for any off-colored or slabby trays that can be scraped separately. Of course, the time to pick blacks out is off the tray as you scrape, also slabs, as much as possible. Blacks, slabs, and off-colored grades should be kept apart, and delivered separately.

Cover fruit in the bins with canvas if possible, to keep it clean. Do not bin too deep, say not over four feet. Fruit should be binned about two weeks in order to equalize thoroughly. If you wish to make delivery of part of your fruit as it is ready it is best to bin in more than one bin or to bin in such a way that you can get out the first fruit binned. Do not sack fruit unless it is to be delivered to the packing house immediately, as it will keep in much better shape in the bin.

As to proper kind of drying equip-

(Concluded on page 15.)

The Home Drying Process

by Hazel Bursell

DRYING as a method of preserving surplus fruits and vegetables came to the fore during the war as a result of Anti-Waste and Food Conservation campaigns. But we should not so soon forget the lessons of war-time just because our necessity is not so great.

The drying process has a number of advantages, even over canning as a method of food preservation. For one thing it is the least expensive of any process, costing practically nothing except the initial outlay for equipment which can be either big or small. The products are easily shipped and stored, having been greatly reduced both in bulk and weight. Once the equipment is arranged, the work of drying is no greater than canning, and in many cases is really less.

Although drying on a commercial scale will not be discussed in this article, that does not mean that these same principles cannot be applied to such an extent that the housewife does have some dried products for sale. And good grade, home-dried products should find a ready market. I know of several women who take in a neat little sum every year through selling dried corn and fruits to the local hospitals.

Choose Type of Dryer.

The choice of method or methods of drying, the first problem, will be determined by climatic conditions and the kind and amount of products to be dried. Sun drying is the cheapest and the least trouble, providing you are assured of rainless periods during the drying seasons. The south slope of a roof, which is not too slanting and easy of access, is an excellent place for drying foods. Merely cover the roof with muslin or papers, weighted down at the corners, then spread on the product in a thin layer, and cover over with cheese cloth to keep out insects. The drying place should be away from a dusty road if the finished product is to be clean. Having the muslin or undercloth all in one piece facilitates the gathering up of the product when dried.

Another sun-drying method is to erect a huge "table" in a sunny place, with posts set in the ground for legs. It can be of rough lumber of any convenient width, laid on bars between two or more sets of upright posts. Then the muslin undercloth and product are spread on as on the roof.

If insects or dust or rain are likely to prove troublesome it may be necessary to dry under glass sashes in a waterproof frame, built much like a spring hotbed. The sashes will be slanted to better catch the rays of the sun, and the higher side of the frame should be hinged to drop down when the dried fruit is being taken out or fresh put in. Trays can be made to fit in the frame or papers and muslin can be used. The product dries better, however, if it is up off the ground in trays. Ventilation through the frame should be provided for by openings on two opposite sides.

An electric fan may be an efficient drying agent where the farmer has cheap electricity. Place the prepared fruit in trays laid one on top of the other. The trays should have open ends to permit the air to circulate freely, and built up sides. The fan should not rotate too fast, or it will dry the outside of the fruit before the inside is ready.

Evaporator on Range.

Home evaporators made to use the heat from the kitchen range, laundry stove or heater can be built and operated for little expense. One of these types is best where the climate is uncertain. They would also be necessary to supplement the sun-dry type in case of sudden bad weather. They must provide for uniform intake, discharge and circulation of heated air through the product to be evaporated. One method is to suspend a series of wire-netting, or heavy cheese cloth trays over the stove. A hood may be necessary to catch any falling dust particles.

A wooden cabinet to rest on a galvanized sheeting base, directly on the stove has been found to be entirely satisfactory. The dimensions are 12 in. by 21 in. by 27 in. in height. It is open at both top and bottom to allow for good air circulation, and contains eight interchangeable and reversible trays of small-mesh galvanized wire cloth, inserted between double wooden frames. The base of 27 gauge galvanized sheeting with re-enforced corners is nailed to the cabinet by ½ in. flanges turned in at right angles on the upper edges of the metal base. This base is 8 in. high by 21 in. wide by 21 in. long, this length allowing the foot to gather heat from under the warming oven. Openings are provided at the bottom

(Continued on page 14.)

News of
The New Hupmobile

We feel sure that every Hupmobile owner, or even observer, will agree with us that in order to dominate its field, the Hupmobile has only to improve upon its own past.

In this new Hupmobile, that triumph has been accomplished in every important essential—with results in performance so brilliant that they validate more strongly than ever its legitimate right to be called the best car of its class in the world.

We direct the attention of Hupmobile owners in particular to these results, which they can absolutely count upon in the new Hupmobile:—

Noted as the Hupmobile has always been for settling down instantly to smooth, steady straight-ahead going, this new Hupmobile has a coasting, skimming quality that surpasses any Hupmobile which has preceded it.

Prized as the Hupmobile has always been for smooth operation, this new Hupmobile is even more free from noticeable vibration.

Celebrated as the Hupmobile has always been for snapping away in the flash of a second, this new Hupmobile is even quicker on the trigger than any Hupmobile before it.

Easy-riding as the Hupmobile has always been, this new Hupmobile—in front and rear alike—outdoes all of its predecessors in bump-absorbent spring action and restful riding.

Comfortable as the Hupmobile has always been, this new Hupmobile is more roomy and affords greater convenience to driver and passengers alike.

These magnificiently improved performance qualities are produced by the engineering and others changes detailed below

This new Series R-12 Hupmobile embodies improvements in motor, clutch, and transmission, in addition to a longer chassis; and new body models throughout.

The net results of the engineering improvements are longer life, still smoother operation, better engine operating balance, an increase of power, and pronounced increase in acceleration and economy.

Heavier crankshaft, counter-balanced with bearing areas 20 per cent greater. Light-weight alloy pistons and connecting rods.

Maximum increase in power, about 10 per cent.

New two-plate clutch affords silent gear changes at all speeds.

Transmission gears high carbon alloy steel, oil-treated and tempered—larger, heavier, longer-lived.

Wheelbase lengthened to 115 inches. Length of front springs increased to 37⅜ inches; the rear springs are increased 5 inches, to 56½ inches.

Frame now 6 inches deep. Five heavy cross members. Spring shackle bolts increased 50 per cent in bearing surface.

Radiator 2½ inches higher, improving both appearance and cooling efficiency.

Newest style full crown fenders. Drum headlights on all models—nickle-plated on the special types.

Touring Car—Finish, new Hupmobile blue, striped in lighter blue. Top clear vision type, with no rear upright bow. Each storm curtain has rigid metal frame which prevents the curtain light becoming scratched or cracked, makes curtains fit even more closely, and their installation much easier and quicker.

Roadster—Body entirely new. A fast, smart, rakish runabout.

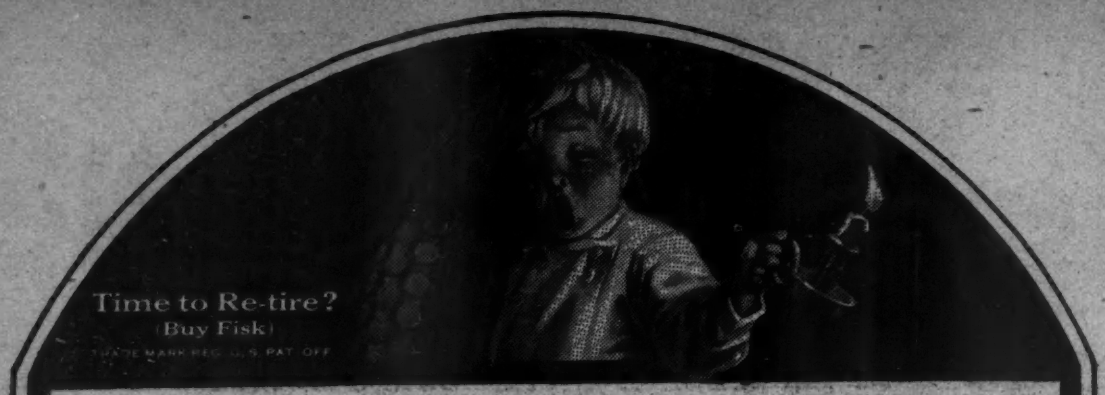
Special Touring and Roadster—Steel wheels, nickel-plated radiator, headlights and cowl lights; scuff plates.

Sedan—A graceful sweeping curve marks the line where body and cowl meet; rear body corners gently rounded, windows reduced in height, and made wider. Upholstery very durable gray cloth, body hardware bright nickel. Equipment includes rear view mirror.

Coupe—***Four Passenger***—Gracefully rounded curves instead of bevels and corners. Upholstery, body hardware and equipment same as Sedan.

Coupe—***Two Passenger***—Roof slightly lower, space under rear deck increased.

Hupp Motor Car Corporation, Detroit, Michigan



Over 400,000 new cars sold this year will have Fisk Tires as original equipment.

In addition, hundreds of thousands of cars sold last year came equipped with Fisk Tires and are still giving service free from trouble.

Out of 600,000 straight-side Cords 31 x 4 (a new size) less than 50 were returned in the first 18 months of sale *for any reason at all.*

These *facts* are the most convincing reasons why you should buy Fisk Tires. No matter what your car, the roads you drive on, or the price you want to pay, there is a Fisk which exactly fits your needs.

There's a Fisk Tire of extra value for every car, truck or speed wagon

FISK
CORD TIRES

Handling Problem Big Item in Prices of Perishables

WHEN a man buys a suit, he may consider the price out of proportion to the value of the wool and other raw materials used in making it. Reflection tells him, however, that the cost of the raw materials covers only a small part of the total expense involved in the production of the garments. He perceived that allowance must be made also for the cost of weaving and tailoring, and for operating overhead and selling costs. While he may still doubt the justification for the spread between the value of the raw materials and the price of the completed product, he recognizes that the problem of determining what spread would be justified is a complex one which cannot be solved by guesswork.

But products that do not go through any intricate manufacturing process are apt to get less careful consideration by the consumer when he judges their market price. Fruit and vegetables, for example, come to his table about in the form in which they leave the farm. When the spread between the price received by the producer and the price paid by the consumer is wide, the latter is prone to conclude without further consideration that somebody is raking off an undue profit. He cannot readily imagine that a commodity which does not change its form in the process of being moved from the point of production to the point of consumption may nevertheless undergo more necessary handling, and therefore be subject to a greater accretion of costs, than another that is very highly processed.

Spread in Prices Shown.

Studies lately made by the United States Department of Agriculture in regard to the cost of distributing fruit and vegetables throw a flood of light on the causes of the wide gap between producers' prices and consumers' prices. They show in detail some of the extremely numerous and varied services which enter into the cost of distribution, and combine to make the price that the final consumer pays. These services are often wasteful and cumbrous, but ways to make them economical and efficient have not yet been applied. The problem, as seen by the department, is a combined problem of engineering and commercial methods. Its solution will require the co-operation of everybody engaged in the production and distribution of the commodities, from farmer to retailer.

On its engineering side, the situation calls for thorough-going reorganization of fruit and vegetable terminals. In most of the large centers of distribution, present terminal facilities are inadequate. They involve long truck hauls, costly delays due to congestion, and heavy damage to produce owing to limitations of space. New structures and new equipment are required. Replanning of mechanical units and provision of new facilities for unloading, distributing and consolidating produce are necessary. But these changes, according to department officials, cannot be made while the present method of handling produce is retained. In fact, it is maintained that introduction of more efficient commercial practices must go hand in hand with reorganization of terminal facilities, in order to make such reorganization either possible or worth while.

Handling Problems Intricate.

That the problem is one of methods as well as of physical facilities becomes apparent from a glance at the nature of the trade in fruit and vegetables. Produce arrives at the terminal markets in homogeneous carloads. But the consumer wants it assorted. He starts the day with an orange, a grapefruit, or a banana. For lunch or dinner he will ask for celery, lettuce, potatoes, in very small quantities. Retailers, in order to meet this demand, must carry a little of everything and not much of anything, and the jobbers who supply the retailers are therefore compelled to buy each kind of produce in small units. In other words, the homogeneous carloads in which the produce arrives at the terminals must be broken up into heterogeneous small lots. This requirement makes it necessary to assemble practically the whole daily supply in one place, where buyers may inspect it and choose the quantities and varieties they want. As the assembling points must generally be centrally located to suit the convenience of the trade, the distributive process is saddled at once with heavy charges for rent, and with congestion which adds enormously to the cost of handling the supplies. High rents for floor space, and the resulting congestion, have long been recognized as the bane of fruit and vegetable markets, and many attempts to overcome them have been made. In New York City, for example, numerous commissions have studied the problem of passing by Manhattan Island in the distribution of perishable produce. They have not solved it, because no method has yet been worked out to obviate the necessity of gathering practically the whole supply of produce each day in one district for the purpose of effecting unit distribution to the jobbing trade.

Railroad Problem Foremost.

How special features of the traffic in perishable produce add to the price at which fruit and vegetables can be sold to the consumer is strikingly illustrated by a study of marketing conditions at New York which has been made by the United States Department of Agriculture in conjunction with the Port of New York Authority. Similar conditions to those revealed by this study exist in other large terminal markets. It is established, in the first place, that the handling of fruit and vegetables is largely a railroad problem, rather than one of distributing the produce of nearby growers.

Records of receipts at New York for the year 1921 show that, out of a total equal to 141,000 carlots unloaded, more than 70 per cent were brought in by rail. It is thus apparent that a system of expanded farmers' markets would not be a complete solution of the distribution problem in New York. Indeed, such a system could have little influence on the general situation. As a matter of fact, there is probably no large city in the country where such markets would be adequate to all needs, owing principally to the growing demand for an all-year round supply of fruits and vegetables. Rapid transportation now makes it possible to distribute fruits and vegetables over an exceedingly wide area, so that points of production are often thousands of miles from the points of consumption. Long haul rail traffic in perishables is constantly gaining. In 1900, there were unloaded 4,405 cars of fruit and vegetables on the Manhattan piers of the Erie railroad at Duane Street. By 1920 the total had jumped to 22,640 cars. It seems pretty safe to conclude, therefore, that the terminal handling of fruits and vegetables will continue to be largely a railroad problem.

The next striking fact revealed by the Department of Agriculture, in its study of the situation at New York, is the high centralization of the distributive process. Most of the produce is first displayed and sold in a market on the lower west side of Manhattan Island, from which it is distributed by truck mainly to five principal jobbing markets. This central market, despite its high rental cost and intense congestion, has dominated the trade for years, to the astonishment of many observers. Numerous attempts to build up other centers outside Manhattan Island have failed, chiefly because the nature of the demand for perishable produce obliges jobbers to practice small unit, wide variety buying on the basis of inspection of practically the entire available supply. There is some selling by inspection of sample only. In 1921, for example, out of about 141,000 carlots unloaded, 30,760, or a trifle under 22 per cent, were sold by sample. But usually, owing to the highly perishable, unstandardized character of the supply, buyers insist on seeing the bulk of the line. Here is the rock on which all previous attempts to decentralize the distributive process have split.

Hauling Costs Range High.

It can be imagined how heavily the necessity for assembling the bulk of the supply on the expensive land of Manhattan Island adds to the price at which the fruit and vegetables can be sold to the final consumer. The fur-

(*Concluded on page 28.*)

Prune Drying

(*Continued from page 5*)

tary aspect is also a great item as dust and insects can be kept from the drying fruit.

The natural draft drier is a simple affair consisting of a furnace pit which houses the stove and smoke pipes; the tunnels, in which the product is dried on trays, and the stack which permits the moisture-laden air to be carried to the outside.

The mechanical draft drier is another step upward in the improvement of the system of drying. This drier has a uniform air flow which is under the operator's control at all times. It utilizes much of the heat wasted in natural draft driers, thereby reducing fuel consumption. It speeds up drying by using a humid air of high circulation.

Three factors are involved in the drying process—temperature, humidity and circulation. Scientific study has determined the proper relationship of these three factors in drying to produce a high quality product. A temperature of 150-160 deg. F., humidity 15-30 per cent and a circulation of 750 lineal ft. per minute is recommended by the Oregon Agricultural Experiment Station.

The prune should be dried down to a moisture content of approximately 20 per cent. Prunes on coming from the mechanical draft drier seem to the touch much more moist than those dried in the natural draft drier. This is due to the pliability of the skin caused by the high humidity.

Fruit being removed from the drier, should be dumped upon tables to cool. At times there is a tendency towards dripping due to excessive heat. After cooling this drip causes the fruit to adhere so tightly to the tray that it is removed with difficulty.

Now the fruit is ready for processing. The final preparation for the market is most essential as upon it depends the appearance, which is a great factor when the fruit is placed before the public. Various methods are used in processing. The fruit after being graded to size and properly sorted is steamed to heat the fruit to the pit and produce a uniform consistency. The processors used are of the shaker type and can be made to suit any capacity. Packing into boxes is done immediately to insure perfect sterility. Boxes of varying sizes are used. Much of this product is being packed at the present time in lithographed cartons which finds a ready market with the average housewife.

Fighting Pear Psylla

(*Continued from page 4.*)

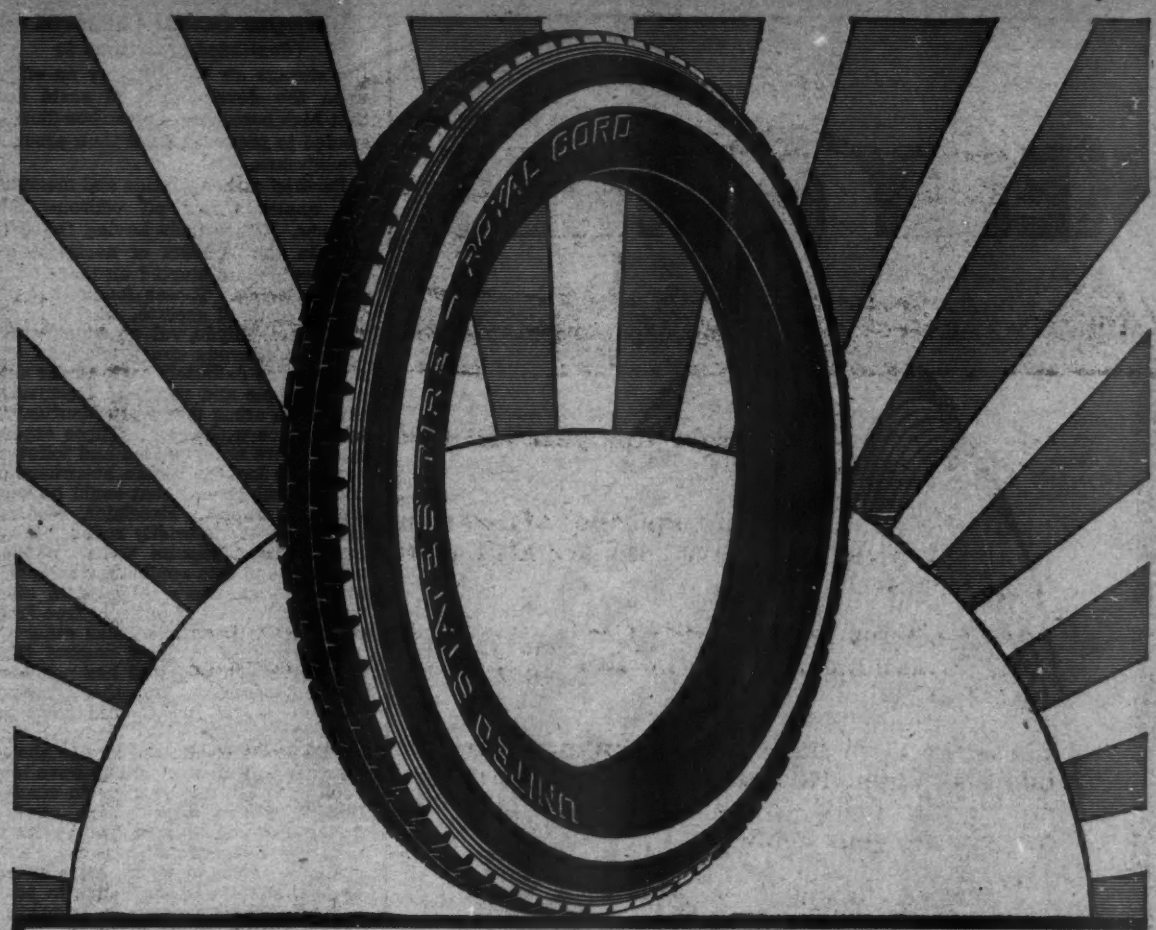
leaves turn brown or black, dry up, and fall in midsummer; the fruit remains small and most of it falls prematurely. Some orchards give the appearance of having been swept by fire and, owing to their weakened condition, often succumb during the winter months. Also, during the summer, when the young psyllas, or "hard shells," as they are called, are abundant, great quantities of "honey dew" are exuded by the insects. This honey dew is an ideal medium for a certain fungus, known as the "sooty fungus," which grows abundantly on the honey dew and stains the fruit so badly that it cannot be marketed. In years when psyllas are abundant pear growers frequently suffer severe losses from this staining.

Birds Relish the Psyllas.

There is abundant evidence to show that pear psyllas are much relished by the downy woodpecker, the chickadee, the creeper and the nut hatch, all birds which spend the winter in this state. Examinations of the stomach contents of some of these birds have revealed large numbers of psyllas. The kinglet is also known to be quite partial to a pear psylla diet.

The Station investigators believe that they now have a set of circumstances which will enable them to measure definitely the value of these particular birds to New York pear growers. With one well-known insect, the pear psylla, confined to one host, the pear tree, it will be a rather simple matter for the Station entomologists to determine the relative number of psyllas destroyed by birds during the winter months when no other agencies are at work to reduce their numbers materially.

Typical pear orchards have been selected for the experiment, and already about 100 bird boxes have been placed in the trees. Dead limbs for the use of woodpeckers have been placed in nearby hedge rows. The plans also contemplate the feeding of suet and sunflower seed during the winter and early spring. If the birds can be attracted to the orchards by an abundance of food and shelter, there is little doubt in the minds of the Station specialists but that they will find the psyllas a welcome addition to their menu and that they will account for large numbers of the over-wintering insects. Undoubtedly the birds will do their part if properly encouraged by man. A practical demonstration of ways and means whereby the fruit grower may enlist to greater advantage the services of birds in his warfare against insect pests certainly holds much promise both for the bird lover and for a more prosperous agriculture.



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NOTE TO LIGHT CAR OWNERS—*The three U. S. Discoveries apply to Royal Cords in all sizes from 30 x 3½ inch up.*

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United States (US) Rubber Company

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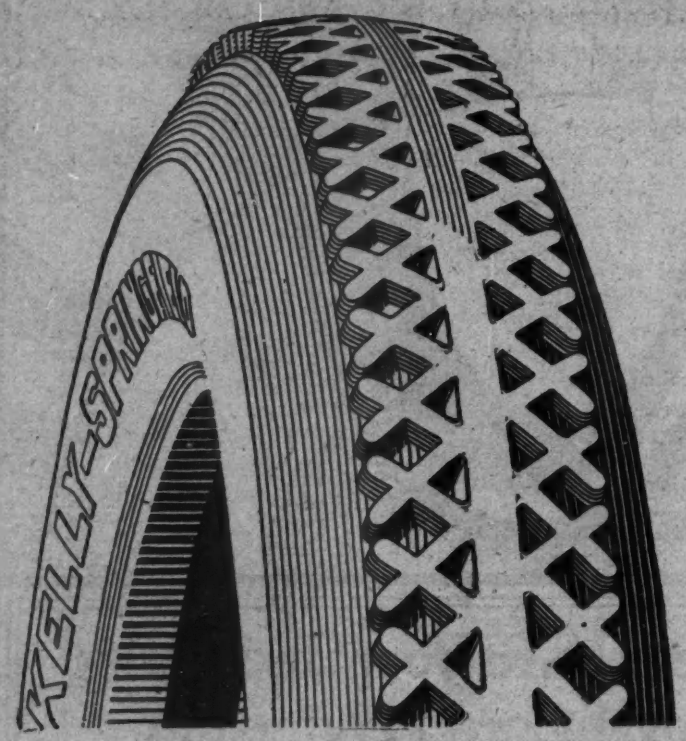
Horticultural Building

THE Michigan Agricultural College is soon to have a very fine horticultural building, probably the finest in the United States. The last legislature, which recently adjourned, appropriated $400,000 for new horticultural equipment for the Michigan Agricultural College. This money will be spent to provide a new building and to equip it with laboratories, cold storage facilities, classrooms and offices.

The coming of this building means a great deal to horticulture, not only in Michigan but all over the United States. Every state in which horticulture is at all prominent should have a very good building and equipment. Horticulture is so highly specialized that it needs the best possible buildings and equipment to handle it intelligently. We congratulate the state of Michigan on their foresight.

KELLY SPRINGFIELD TIRES



It costs no more to buy a Kelly

This is not an empty catch-phrase but a cleancut statement of fact.

In dollars and cents Kelly-Springfield Tires cost no more than you are asked to pay for brands that have never borne the Kelly reputation. In some cases Kellys cost you less than you are asked to pay for unknown makes.

Kelly dealers will sell you Kelly-Springfield Tires at a price that will meet any reduction in reputable makes now or hereafter. Learn for yourself that *actually*—

It costs no more to buy a Kelly

Apple Scald Control

(*Continued from page 3*)

the storage air had little or no effect upon the development of scald and that high percentages of carbon dioxide tended to prevent rather than produce the disease.

Besides carbon dioxide and moisture the apples throw off odorous substances. Other tests having failed to explain the benefits of aeration, experiments were started on these odorous materials. It was found that the vapors of amyl acetate, amyl formate and acetaldehyde, all of which enter into the odorous constituents of the apple, were definitely toxic to the skin of the apple and produced injuries to the green areas that were identical in appearance with scald. These experiments were accompanied and followed by others looking for an absorbent of odorous substances that could be used with the apples. Excelsior, sawdust and charcoal materially reduced scald but the best results were obtained with oils and fats applied to the apples or to the wrappers. Apples in oiled wrappers remained entirely free from scald. Whether the oil has other favorable action in scald control than the absorption of odors has not been fully determined, but the practical success of the treatment has been most gratifying.

The power of oils and fats to absorb odors is well known. They have long been used for this purpose in connection with the manufacture of perfumes and the tendency of butter to take up odors is familiar to all. Various oils, fats and waxes were tested as to their relative efficiency in scald control. The waxes, such as paraffin and beeswax, decreased the disease but were not near as efficient as the fats and oils. Practically all of the oils tested gave good control of scald but the odorless, tasteless mineral oils, such as are used extensively by bakers and confectioners and otherwise in connection with food products, seemed most desirable for use in contact with the apples.

The experiments in the direct application of oils and waxes to the apple have not been fully successful. Scald has usually been reduced by the treatment and in many cases practically eliminated but the appearance of the apples has always been injured. Rubbing the oil on tended to remove the natural bloom of the apple, and if enough oil was applied to control scald the apples had an oily appearance upon removal from storage. With heavy applications of oil the ground color of the apples remained abnormally green.

These objectionable features have not been found with the oiled wrappers and they have always either completely controlled scald or reduced it to an extent that the commercial value of the fruit was not materially affected. In a total of more than 80 different storage experiments there have been but two cases of failure and in both of these the time of appearance of the disease has been delayed and its severity greatly reduced. The tests have covered a period of five years, have been made on more than a dozen different varieties and have been carried out in eight different eastern states and in two western ones.

Examples of the results that have been obtained with oiled wrappers are given in the following table. The apples in each instance were comparable in all respects, having been picked on the same date from the same trees, packed at the same time, immediately placed in cold storage under identical conditions except for the wrapper used, and removed and observed at the same time. The western apples were packed in boxes and the eastern ones in barrels. The results show the efficiency of the oiled wrapper under both box and barrel conditions, but it should be noted that it is not considered practicable to pack wrapped fruit in barrels.

Table Showing the Control of Scald by Oiled Wrappers.

The percentages are based on the average fruit surface scalded and the intensity of the scald.

Locality and variety.	Date of record.	Per cent of scald Oiled wrapper.	Unoiled wrapper.
Eastern Apples:			
Grimes	Jan. 20, 1919	0	27
Grimes	Jan. 18, 1920	0	82
Grimes	Jan. 8, 1921	0	66
Grimes	Jan. 12, 1923	0.1	47
York Imp.	Jan. 17, 1920	4	60
	Feb. 5, 1921	0	27
	Feb. 10, 1922	2.4	8
	Feb. 17, 1923	0.6	31
Wenatchee, Wash.			
Rome Beauty	Apr. 30, 1920	0	41
	May 18, 1921	0	30
	Apr. 22, 1922	0	22
	May 3, 1923	0	30
Stayman Winesap	Mar. 24, 1919	0	19
	May 23, 1921	0	16
	Mar. 18, 1922	0	14
	Mar. 19, 1923	0	15

The good results that have been obtained from the use of oiled wrappers give no excuse for carelessness in other phases of apple operations. They are not a cure-all in apple storage. They have little or no effect upon the rots or upon internal breakdown and do not prevent diseases and defects other than scald.

The date of the above table and the various statements in regard to scald control are based on wrappers carrying a minimum oil content of 15 per cent of their dry weight (14 lb. basis). Wrappers carrying less than this amount of oil have usually reduced scald but have been less efficient than the more heavily oiled ones and are not recommended for commercial use.

The Trade Welcomes the Oiled Wrapper.

The oiled wrappers used in the earlier experiments were prepared by hand from the usual commercial wrappers. In the summer of 1919 a number of paper companies were asked to consider the preparation of oiled wrappers suitable for use on apples. None of them undertook the work that year but the following season one company prepared a small run of high grade wrappers that were used experimentally and also by several growers. In 1921 three or more paper companies were in the field with oiled wrappers. Some of these wrappers contained sufficient oil and good results were obtained in commercial shipments, but unfortunately a large proportion of the paper carried insufficient oil for scald control. In many cases the oil content ran as low as 5 per cent. In spite of the indifferent success attending this first large-scale commercial test of oiled wraps, shippers had been so thoroughly convinced by the earlier experimental results that they were anxious to try the oiled wrapper again and in placing their 1922 orders for paper they specified a minimum oil content of 15 per cent. The paper companies had gained experience and a number of additional companies had become interested, particularly those especially equipped for waxing and oiling paper. Good oiled wrappers were supplied and the results in scald control have been most satisfactory.

While the oiled wrapper has been used in various sections in both the east and the west its large scale introduction has centered in the experiments and demonstrations of the junior author at Wenatchee, Wash. The fruit used in the various experiments at Wenatchee was displayed from time to time for the benefit of growers and shippers and the results were so outstanding that the commercial handlers of apples in the Northwest were anxious for more extensive tests. There were several large orders for oiled wrappers in 1921 and in 1922 approximately 200,000 lbs. of oiled paper were used in the Pacific Northwest, most of it in the Wenatchee and Yakima districts.

Shippers varied their tests in different ways; some sent out carlots half in oiled wraps and half in common unoiled paper, while others found it advisable to ship their fruit in unoiled wraps early in the season on account of the development of scald and held their oiled wrap apples in storage for better markets.

Wenatchee and Yakima shippers have endeavored to hold the late-keep

(*Concluded on page 28.*)

Parasites Save Citrus Fruits

(Continued from page 4.)

by offering the most favorable conditions for rapid indoor culture. The well planned incubation now being practiced makes it "quite an ordinary achievement" to "bring out" a batch of Aphycus in 22 days, whereas normal field production requires twice that length of time, thereby causing the laboratory work to acquire its full measure of approval in the eyes of the growers.

Pepper Trees a Menace.

Pepper trees, with their lacy luxuriant branches, which tourists so extravagantly admire, have long been the bane of the citrus folk, for their abundance of soft, sappy growth forms an ideal breeding place for scale, making possible a "continuous production" which, harbored in all stages of growth, necessitates the presence of the three parasites, who by their individual efforts, make a victorious assault upon this ancient and well intrenched enemy. Cuttings from trees showing heavy incrustations of scale are placed in trays on the racks that reach high up in the incubating rooms, which are kept at a temperature of 80 deg. No smoking is permitted within the houses, for tobacco has a disastrous effect upon the helpful parasites. The windows are screened with white cloth, upon which the insects fly "showing up" in startling contrast to the smooth, clean surface, and from this vantage point girls and women, upon instructions from the manager, go to the different rooms and select the types of parasites desired, segregating them by actual count of 50, in small glass tubes which are stopped with a thin fold of cloth held in place by an elastic band, for in this way they are sent to the various associations and from there apportioned pro rata among the members according to the extent of their acreage. By holding each consignment of pepper tree cuttings for an incubating period of two months, a "second crop" of Aphycus can be produced, for the life cycle of this helpful agent is only of 30 days' duration. Each female lays about 100 eggs and, computing on so small an equation as a 50 per cent reproduction of these, the rate of increase must be further extended, for this is the primal factor to be attained in both field and laboratory work. The necessity for this is shown by the tremendous reproductivity of the scale organism, for each cup-shaped, minute shell of scale affords protective covering for from 50 to 3,000 pestiferous insects, and, should only so meagre a proportion as 2 per cent of these reach maturity, they would create a force sufficient to infest both new and old groves and cause severe financial loss to the growers of citrus fruit.

Eliminates the Red Spider.

Red spider is another old-time enemy which California grove owners sought to control with sprays until a beneficent discovery was made when, on checking up on a grove that had been actually over-run with spider, it was found that at the end of the two-year period of time previously mentioned, the "natural destroyers," when allowed to breed, had fed upon the spider with such energetic partiality, that this pest, as well as the scale, had been automatically eliminated.

Entomologists who had been conscientiously studying the problem declared that the "liberal doses of spray," through which the spider passed with unimpaired vigor, had completely destroyed the "natural enemies" which, given the right to live would have determinedly put the spider out of existence. The truth of this assertion was made plain to doubting orchardists when a portion of a mildly infested area was sprayed and the remainder was given over to the predatory parasites for, in a few months, the sprayed section was found to be a prolific habitat for both spider and scale while the portion where the Predators were working was cleaned to such an extent as to show an almost complete elimination of these pests.

Foe of the Mealy Bug.

Mealy bug, another noxious insect which has caused great anxiety to growers, is now retreating in defeat before the voracious maw of Cryptolaemus Montrouzieri, which evinces a "natural tendency" to lay its eggs in the mass of the mealy bug, finding an ideal downy "incubator" in the cotton-like excretions. Cryptolaemus is assigned to separate quarters from the scale eating fraternity, although, in the cellar underneath the scale insectory are the frames where row upon row in hundreds of spaughnum lined trays, the layers of potatoes are sprouted to furnish succulent food for the hungry mealy bugs which are transferred in relays to the specially built laboratory where the Cryptolaemus—which resembles flakes of hoar frost—proceed to feed upon these fat morsels of mealy bug ere they lay the eggs that mean the ultimate destruction of their erstwhile hosts.

Tabulation of results—and these are especially satisfactory considering the newness of the enterprise—and the united opinion of the entomologists, substantiate the findings of other keen observers that parasitization is the one and only method whereby not merely clean culture and cropage can be carried through, but it goes still deeper, for it is now proven that only through an aggressive, overwhelming invasion of these "trouble chasers" can the citrus industry continue to prosper.

It is a strange analogy of mental acrobatics when growers who have admittedly lost faith in the curative effect of spray, gas and insecticides, when after repeated applications these most skillfully blended formulas have repeatedly failed to even check the destructive forces for which they were combined, should expect instant evidence of radical action on the part of the parasites! Of course there are insects and diseases that can be controlled by spraying and fumigation; others must be largely controlled by the use of parasites.

Guaranteed for Life!

McCormick-Deering Tractor Crankshaft and Main Bearings

THE crankshaft and the crankshaft ball bearings of the McCormick-Deering 10-20 and 15-30 tractors are guaranteed against breakage, not for a month or a year, but *during the entire life of the tractor.*

This guarantee covers breakage from any cause whatsoever, and in the case of the ball bearings guarantees them from wearing out or burning out during the life of the tractor.

Read this SPECIAL TRACTOR WARRANTY, which every purchaser gets in writing:

The seller agrees to replace free the TWO-BEARING CRANKSHAFT in any 10-20 or 15-30 McCormick-Deering tractor, should it break during the life of the tractor, provided the broken parts are promptly returned to the factory or one of the branch houses.

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THINK of it! Never before in the history of the automotive industry—with automobiles, motor trucks, engines, or tractors—has such a warranty been given. You have never before seen nor heard of so liberal a tractor guarantee. This is convincing proof of the indestructibility of the crankshaft and the crankshaft ball bearings in the McCormick-Deering tractors, and you will find the machines of uniform quality throughout.

In addition, the Company continues its policy of providing tractors with all necessary equipment—throttle governor, belt pulley, platform, fenders, brake, etc. No extras to buy.

Your McCormick-Deering dealer will show you the many valuable features of these tractors, such as ball and roller bearings at 28 points, unit frame, replaceable wearing parts, etc. He will show you the size of the guaranteed crankshaft and demonstrate how easily it runs in the guaranteed main ball bearings. When you buy a tractor, be sure this valuable guarantee is written into the contract!

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Nothing New Under the Sun

We went to see a movie,
We thought it some great show,
But pshaw! Rameses put one on
At Thebes, four thousand years ago.

We painted up our cheeks and lips,
And thought we sure looked grand,
But found that Cleopatra did this thing
In dark old Egypt land.

We went and put out vinegar
On each tree in a row—
To kill the daring little moth
Whose eggs make worms, you know.

We thought that we did something new,
But only stubbed our toe;
We found that others did that stunt,
Some fifteen years ago.

If we should find some magic dope
To kill off all the pests,
We'd find that Adam used the stuff,
Before he went to rest.

—Carrie P. Pierce.

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There is something goes into the Silvertown Tire from which the farmer reaps service. It is as real as the seed that goes into the ground from which grow his crops.

You see it in Silvertown's rugged body—tough, slow-wearing, anti-skid tread—and sidewalls extra fortified with tread rubber to protect them from the road ruts of dry, hard-pan weather.

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3 Coleman Mantles are made of long-fibre Egyptian cotton and have reinforced patented bottoms, giving double strength where gas pressure is greatest.

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HOME SUPPLY CO.
131 Duane St., N.Y. Dept. 63

Home Drying Process

(*Continued from page 8*)

on all four sides to allow free intake of air close to the hot surface of the stove.

Patent dryers can be purchased, and much more elaborate ones can be built at home, but the ones described above will suffice for our purpose here. If there is a regular commercial prune dryer on the farm or any other type, then it can be used for the home drying just as well. Oven drying should not be overlooked. The first thing to do, then, is to choose the type of dryer best suited to your needs and then provide the equipment needed. Then comes the actual drying processes.

What to Evaporate.

While anything may be dried, it is usually best to choose fruits which have considerable solid matter such as apples, peaches, prunes, etc., and vegetables which are not too strongly flavored, such as green peas, green beans, corn, pumpkin, squash and spinach. Very soft fruits are hard to dry, while some other fruits become too much changed in character to be desirable. Some berries, moreover, are too seedy to make a good product.

In all cases, regardless of the product being handled, the fruits and vegetables should be harvested when they have reached that condition in which they would normally be gathered to be prepared directly for the table without evaporation. They should then be handled as soon as possible after being picked in order that the resulting product may be of the best quality.

All fruits should be fully ripe. Vegetables must be fresh, young and tender. All decayed, rotten, moldy, or diseased specimens should be thrown out. Prunes and apricots are left on the tree until they fall naturally, or on shaking the tree gently. A good system is to spread a canvas under the tree and shake them gently down, then the fruit will be easily gathered up and will be clean.

Personally, the writer thinks it is utter folly for the farm housewife to dry any but a few of the family "standbys," which are well-liked and yet cannot be kept in the natural state any too well—such as peaches, pears, apples, prunes, apricots, cherries and corn. Why should anyone go to the work of drying potatoes, carrots, beets, onions, pumpkin, squash, etc., when they can be kept perfectly well in the pit, or the garden itself in the milder climates? Berries are too "seedy" and are much better canned.

Preparation and Drying.

APPLES.

Select mature fruit. Wash, peel, core and slice or quarter the fruit, working as quickly as possible to prevent darkening. A patent apple peeler which peels, cores and slices all in one operation will be found a real labor-saver for a small investment. Dropping the prepared fruit into pails of water is a simple method of preventing darkening. A home sulphuring process is advocated for any large amounts, and the details of this method may be learned from U. S. Department of Agriculture bulletins.

Then the fruit is spread on the trays of the stove-dryer or on sheets on the roof as the case may be. Apples are dry when a handful of slices gripped firmly in the hand has an elastic, springy feel, separates promptly when the pressure is released, and leaves no visible moisture upon the hand.

APRICOTS.

The fruit intended for drying should be picked from the tree before it becomes ripe enough to drop. The fruit is then halved, and stoned but never peeled. This fruit may also be sulphured if the housekeeper prefers. Then the halves, cut side up, should be spread in the sun or dryer trays as preferred. If the dryer set on top of the stove is used the beginning temperature should be 130 to 145 deg., which is gradually increased to 165 deg. toward the end of the drying process.

CHERRIES.

Sweet cherries, especially the dark, solid-fleshed varieties, such as the Tartarian, Bing, Lambert, and Dikeman, make a very acceptable product when dried and may be employed in the same way as raisins. The sour or pie cherries are also easily dried. The fruit is washed, picked over to remove stems and imperfect fruits, and may be dried either with or without the pits. Much of the juice will be lost in the pitting process and some arrangements should be made to use it. Then the fruit is spread out to dry. If dried in the dryer the temperature should not be above 120 deg. F. at first and should never rise above 150 deg. F., as cherries are very easily injured by overheating.

They are delicious when sugared before drying. They may be either dipped in a boiling sugar solution or sprinkled with sugar previous to or during the evaporation period.

CORN.

Select sweet corn which is at the milk stage suitable for table use. Husk and remove silk. Drop the ears into a white sack and place in boiling water for 5 min. to set the milk. Remove by taking hold of the sack corner, and cut the kernels from the cob. Spread in a thin layer in the sun or on the trays to dry. I believe the sun gives the best product in this case. The kernels will be dry and sort of "rattle" when ready to be stored.

PEACHES.

Peaches should be ripe but not bruised. They may be dried either with the peelings on or off, but they are just as good with them on so it does not pay to remove them. If you want the peelings removed, either dip them in hot water, causing the skins to slip off, or peel them with a knife. They should be halved exactly on the suture and the pit removed by cutting around it with a sharp, flexible knife. Then the halves are spread, cut side up, in the tray or sun and put to dry. The dryer temperatures are the same as for apricots.

PEARS.

The Bartlett pear is the best for drying. They should be ripe, but picked earlier and allowed to mellow as for canning or table use. Halve or quarter the large ones, removing the stems, but leaving the cores if so desired. Pears are seldom peeled for drying. The fruit should either be kept under water during preparation or sulfured if in large quantities, to prevent discoloration. The temperatures are the same as those for apples. The properly dried product is elastic and rubberlike, and it is impossible to press water out of the freshly cut surface of the pieces.

PRUNES.

Prune drying is done mostly on a commercial scale, but some farm homes may desire to dry a few. The fruit should be allowed to become fully ripe and fall from the trees to get the sweetest product. They should never stand more than 12 hours before drying. The fruit is merely washed and spread one deep on the trays. It would not ordinarily pay to dry prunes in the sun, except where the climate is hot and dry.

The temperature should not exceed 140 deg. to begin with, the fresh trays being placed in the coolest part of the dryer. As the wrinkling of the surface begins the temperature may be gradually increased to 175 deg. F. without danger. Prunes are sufficiently dry when the flesh shows no moisture when torn across and pressed vigorously between the fingers.

Treatment After Drying.

All fruits and vegetables should be subjected to a curing process after they have been dried, as the product of even the same tray may not be evenly dried. The product should be piled loosely while still warm on a clean floor and thoroughly stirred

daily for 10 days or two weeks. Then the moisture in the mass will be evened up and the product may be safely stored without danger of spoiling. The curing room should be darkened and should be screened to exclude insects. The products quickly change color if exposed to sunlight.

With materials which have been dried in the sun or by an electric fan, special precautions are necessary, since such materials will commonly contain the eggs of certain moths and beetles which will later develop and destroy part of the product. The best method is to spread the product in ordinary baking tins and place these in the oven of the cookstove with a thermometer so placed as to register the temperature. Allow the product to remain until the oven has reached 180 deg. F. This temperature will destroy all insect life.

Storing of Products.

The next and last thing to be done is to place the dried products in stout paper bags, tin cans with slip-on covers, heavy pasteboard boxes, or muslin bags which have been dipped in hot paraffin, and store in a warm, dry room. An airy attic is excellent. The average kitchen pantry is too moist because of the water which constantly evaporates from utensils on the stove.

If properly done, the dried products should, when soaked and prepared for the table, have changed very little in flavor or in food value from the fresh food. The main requirement is that they have plenty of time to soak and swell to their original softness and bulk. Then they should be cooked in the soaking water to avoid loss of food value. Dried fruits make excellent desserts, and the vegetables can be served buttered, creamed, or with meats as preferred.

Handling of Apricots

(*Continued from page 8.*)

ment and arrangement of the equipment, it would be best for anyone not familiar with drying apricots to visit some of the best driers and see for himself what is used. Expensive, permanent sulphur houses need not be built, as some of the most successful driers use only paper houses. Plenty of trays and boxes are absolutely necessary. Three by eight size trays are most popular; and it will take around twelve to fifteen trays per green ton in one season, figuring that a tray can be used three times during the drying season. As to size of picking boxes, the forty-pound box is probably used the most. At any rate, remember that the shallower the box, the better it is for the fruit. If you have deep boxes it would be best to only partly fill them. Remember the importance of having a clean product. Good quality, clean, dried apricots are the kind that will always be in demand.

Great Interest in Canning Grapefruit

by C. A. Whittle

NOTHING has so much encouraged citrus growers in Florida as the discovery that grapefruit can be successfully canned. Within the past six months as many as a dozen companies have taken up the manufacture of canned grapefruit. A packer whom the writer interviewed at Orlando, Fla., stated that he had offers for all the canned grapefruit he could manufacture, every pack of which would go to Europe. He had just started up in an experimental way in one end of his packing house but sees great possibilities and is planning to establish a large separate plant at once. The citrus exchange of Florida is in the canning business and is prepared with its strong organization to promote the use of canned grapefruit on a broad scale. The demand already promises to be ahead of its capacity to produce. A similar story comes from other packers and canners of Florida, in fact, the canned grapefruit industry is being launched with great promise.

This new enterprise originated in Porto Rico and went through the experimental stages of development there before it was taken up in this country. This accounts for the popularity and apparent success of the movement in Florida from the very outset.

The greatest benefit to be derived from canning grapefruit is in providing an avenue for the disposal of culls which at present are worthless to the grower. Oversize, knotty, insect marked skins or overripe fruit, not suitable for the present market, when canned are as good as the best.

May Develop Foreign Market.

From present indications, another and possibly a great benefit to be derived is that by the canning process the grower and packer may develop a large foreign trade, which at present is limited by reason of the perishable nature of the fruit. When Poincare, the "Tiger of France," visited the United States he tasted for the first time the Florida grapefruit and was so delighted that he ordered a crate shipped each week to him in France. With the grapefruit canned there is no danger of the fruit decaying before it reaches the European consumer, however long a time it takes. Foreign trade is believed by shippers to hold forth almost unlimited opportunities to the citrus industry of Florida.

Another advantage to the grapefruit grower is that when a bumper crop comes on and the market sags, the canneries can help to relieve the situation and maintain a profitable price.

Limitations to Canning.

But there are some limitations to canning grapefruit that do not make it the panacea that the enthusiasts might imagine. Canning grapefruit will not prove profitable unless the fruit is obtained very cheaply. Whenever a grower can find a market for whole fruit it will pay him better to sell it in that form, and sell to the canner only those which the whole fruit trade will not accept. At least, this is the present status.

Eventually there may be evolved a cheaper process for preparing and canning the fruit than now exists. It is now all hand work and a great deal of work too. The fruit is peeled by hand and with sharp knives all the white or "rag" is trimmed off. Then the fruit is fixed on a fork and each segment is removed with a triangular knife. Nothing but the segments, free of pulp or "rag" goes to the can. The juice that is released in these processes is purified and put in the can with the segments of fruit. To this is added a syrup and the can is closed. The processing consists of immersing the cans in water heated to 175 or 180 deg. F., where they remain for 10 min. They are then shifted to cold water for cooling. Each can contains the fruit of four grapefruit which is enough to serve about six people. The consumer has the advantage of having only the edible portions of the fruit placed before him and is saved the necessity of digging with a spoon into the halved fruit as is now the case. For salad purposes the canned fruit would, of course, be very desirable.

Canning does not appreciably alter the taste of the fruit. To most consumers it will doubtless taste better than whole fruit, for whole fruit shipped out of Florida is often not fully ripened on the tree before it is gathered, or though gathered full ripe may have deteriorated in shipment. In fact, the canned grapefruit may meet the popular fancy too well. It may be impossible to meet the demand. If the cost of canning cannot be reduced decidedly, it will continue to pay better to sell the best fruit outside of the can.

The present economic value of canning grapefruit is, therefore, limited to culls but if the processes of canning are sufficiently cheapened, it promises to very materially extend the market and help solve the problem of rapidly increasing grapefruit production.

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Orchard Problems and their Solution

by Paul C. Stark
Associate Editor

Brown Rot of Stone Fruits

How can I protect my plums and peaches from the rot disease? I have always noticed this trouble particularly during wet seasons. R. M. T., Arkansas.

THE rot disease to which you refer is Brown Rot and common to all stone fruits. It is usually more severe during rainy seasons, because the spores of the rot fungus are spread chiefly by the raindrops splashing from one fruit to another.

Brown rot is controlled by spraying with self-boiled lime-sulphur. This spray is made by combining stone lime, flowers of sulphur and water at the rate of 8-8-50. A slight amount of water is used to slake the lime and the sulphur mixed in while the slaking and boiling process is going on. In about 10 or 15 minutes after the lime is all slaked, add the rest of the cold water and the spray mixture is ready to use.

Self-boiled lime-sulphur can be used on trees up until a few days before the fruit is ready to be picked. To do the greatest amount of good in preventing brown rot, the spraying should be done before a rain rather than after, particularly in the case of continuous wet weather.

Omitting Lime-Sulphur in Second Brood Codling Moth Spray

Might it be advisable in spraying apples against the second brood codling moth to omit the lime-sulphur and use arsenate of lead only? Most of my trees are Jonathan and Grimes Golden which do not scab to speak of. J. T. B., Michigan.

YOUR plan of using arsenate of lead only for the last summer spray on Grimes Golden and Jonathan has much in its favor. The fruit of these two varieties rarely scab and the poison element of the spray will be all that is necessary to control the codling moth. Still another advantage of omitting the lime-sulphur would be to eliminate any chance of burning the foliage and of russeting the fruit. Grimes Golden is somewhat more subject to russeting than the red varieties and some sprays such as lime-sulphur, have a tendency to increase this condition. However, in the case of apple varieties which tend to scab more freely, it would not be a good policy to omit the lime-sulphur at any time during the season.

Sun Scald

Some of my young apple trees seem to be affected by the sun, showing scald on the southwest side. What is the best way to correct this trouble? S. A. R., Texas.

TREES in many parts of the west and southwest, owing to the effect of the hot sun and dry atmosphere, commonly suffer from sun scald if not properly protected. The best way to prevent sun scald is to start the trees with a low head. Newly set trees should rarely have any of the lower leaves and branches removed during the first summer, as the presence of these leaves tends to shade and lower the temperature of the trunk until the top gets large enough to offer sufficient shade.

In addition to forming low heads, artificial protection may also be given to prevent sun scald. A better method, however, would be to whitewash the young trunks as this gives ample protection and can be done at a minimum of time and cost. Apply the whitewash soon after the trees are planted and this will last until the top develops sufficient shade.

Plum Curculio Epidemic

I have a peculiar condition in one of my orchards near where an old house once stood. The fruit on my apple and plum trees is alwaya badly stung with curculio. Can you give me any explanation for this situation? L. A. B., Ohio.

THE plum curculio, an insect which attacks many kinds of fruit, including apples, commonly winters as a beetle in hedge rows and other similar places where they are not disturbed. They then go to the various fruits at blossoming time and soon after puncture them, causing the "stung" fruit. When not in too large numbers, the curculio is controlled by arsenate of lead in the spray mixtures.

When curculio injury is especially severe it usually becomes necessary to use additional measures. You probably have large numbers of curculio beetles wintering over every year around the foundation of the old house and a good cleaning up of this location will do more in controlling this pest than anything else you can do. All hibernating places such as stone walls, brush, fence rows, etc., should be cleaned up and the whole place burned over in the late fall if possible. Sanitary measures of this kind will go a long way in controlling a good many pests.

Cherry Shot-Hole Fungus

After picking my cherry crop, the trees began to lose their leaves by some disease which made the foliage yellow and full of holes. Can I spray to avoid this trouble? O. S. K., Indiana.

CHERRY trees when affected with leaf spot or shot-hole fungus often lose much of their foliage. This disease is best controlled by spraying with Bordeaux mixture 3-3-50 after the fruit is picked. Trees which have lost vitality through a loss of foliage can be invigorated by the application of nitrogen fertilizer early in the spring.

Blight Disinfectant Formula

by L. H. Day

The formula for pear blight disinfectant to be used after shaving off the outer bark of blight cankers as described in my article in your June issue is prepared as follows:

Dissolve in one pint of water, two of the half-gram tablets of Cyanide of Mercury and two of the half-gram tablets of bichloride of mercury. To this add three pints of glycerine. In case the tablets cannot be secured one gram of the crystals can be substituted for the two half-gram tablets. The crystals dissolve more readily in hot than in cold water. It must be remembered that these disinfectants are very poisonous, so the tablets, crystals or prepared liquid should be kept out of the reach of children.

There is no danger in using them as both of these mercury compounds were used in disinfecting wounds in human surgical operations long before their use in tree surgery. There is no gas arising from the disinfectant solution.

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MARKETS AND MARKETING

THE apple marketing outlook at this time is better than a year ago. At the present time the soft fruit market is not as glutted as last year. Such a condition always has a depressing effect upon the apple market, which follows later. While the apple crop may be somewhat larger than a year ago, there is not such a large percentage of early varieties. Marketing conditions are vastly superior to a year ago. The buying power of the public is very large at this time.

If apple sales may be made relatively early and prices quoted to start the tonnage moving, it should be the forerunner of a very fair season. To get the best results, however, there must be a very wide distribution of tonnage, heavy storage of good stock and a more general use of oiled wraps. On the Pacific Coast a movement has been inaugurated to co-ordinate the various selling agencies of that section. It was thought at first that a large federated marketing organization to control the tonnage of the northwest could be formed. The opinion of most leaders in that section is that a movement to co-ordinate marketing is the first and most desirable step to take. Aaron Sapiro, the well-known co-operative attorney, has been in the northwest helping formulate plans for this co-ordination. A committee of 15 representatives from various districts has been formed to determine to what extent it is possible to co-ordinate marketing activities.

THE wind-up of the grapefruit season in California did not prove very satisfactory, the growers finding themselves with some 300,000 boxes of grapefruit on hand with a continually falling market. A part of the trouble seems to be that a considerable percentage of the grapefruit sent north was dry, pithy, nosey and of rather poor quality. A very common sight is to see people in retail fruit stores pouring over the piles of grapefruit to pick out the better specimens. Probably more money would have been made if some of this grapefruit had been canned and otherwise utilized.

THERE is a marked reduction in the production of pears this coming year, especially in the middle west and south where a heavy tonnage of pears is produced annually for canning. Reports from the Pacific Coast are to the effect that the canneries do not expect to put up as large a tonnage as a year ago. It is hard to understand this policy, unless it is a question of finances, as it would seem to be a year when the Pacific Coast could, to good advantage, can more pears than it normally does.

Fresh shipments of pears which arrive in the market early in the season or very late should bring good figures. If, however, the mid-season market is overloaded, as it has been the past few years, and the fruit is concentrated in a few large eastern centers, the growers cannot hope to realize good figures. Both pre-cooling and wider distribution and canning a large percentage of the mid-season crop would seem to be a good program to follow.

Canneries on the Pacific Coast have raised their standard for canning pears. No. 1's in the future must not be less than 2⅝ in. in diameter and their length not less than 1⅓ times the diameter of the pear. Fruit should be of grass green color, fully developed, hand-picked and free from worms, cracks, scale, fungus, bruises or other imperfections.

THE outlook for good prices for peaches is much better than it was a year ago. In the first place, there is a smaller crop and it is somewhat better distributed and there seemingly is at this time less likelihood of disastrous gluts in the market. The prices received for the early tonnage from Georgia and North Carolina have been very fair.

THE dried prune situation has not changed materially. A few private packers have quoted futures that the trade will not accept. This probably has been done to place the co-operatives in an awkward position for in order to move the tonnage, the lower prices cannot be quoted and the packers will then tell the growers that the associations are quoting prices which are too low. The present indication is that there will be a predominance of large sizes of dried prunes this coming season.

MUCH progress is being made in completing plans for the big apple exposition and fruit show to be held in the Grand Central Palace in New York City next fall. The following states have already agreed to come in: New York, Massachusetts, Connecticut, Vermont, New Hampshire, Maryland, North Carolina and Pennsylvania. Ten thousand dollars have been appropriated by the state legislature of New York to help out in the educational features. The following permanent officers were elected: Thomas E. Cross, Lagrangeville, N. Y., Chairman; A. W. Lombard, Massachusetts State Department of Agriculture, Vice Chairman; H. C. C. Miles, Connecticut Pomological Society, Secretary; H. A. Albyn, Bennington, Vt., Treasurer. In addition to these, there are chairmen for each of the following states: New Hampshire, C. H. Barker; Vermont, C. L. Witherell; Massachusetts, Leslie R. Smith; Connecticut, C. L. Gold; New York, Charles G. Porter; Maryland, I. S. Rossell; North Carolina, C. O. Matthews.

THE outlook for a heavy crop of prunes for shipping green is very bright at this time. Walla Walla expects 1,000 cars. Idaho has a very large crop. The Western Fruit Jobbers' Ass'n is giving some assistance to prune growers of Idaho, especially those that are organized, in conducting an advertising campaign, much as has been conducted for strawberries and cantaloupes. Attractive banners and lithographed cards will be used in conjunction with newspaper campaigns.

THE tons of fruit dehydrated in California in 1922 were as follows: Apples, 8,665; apricots, 970; grapes (from vineyard), 4,578; grapes (from dry-yard), 8,374; peaches, 1,808; pears, 323; prunes (from orchard), 24,019; prunes (from dry-yard), 9,370; pumpkin, 259, and miscellaneous, 225.

THE California Pear Growers' Ass'n have just named their opening price on canning pears. These are $50 a ton for No. 1 and $30 a ton for No. 2. The price on No. 1 is $21 a ton below the opening price of first-grade last season, which was $71. It is said that some canners still feel that these prices are too high. There is a disposition to ship more pears east this year from California.

Successful Spraying

(Continued from page 6.)

that 2 per cent oil sprays can be safely used up to blossoming time. Previous experiments by the writer showed that strong lime-sulphur could be applied up to blossoming time in Missouri without significant injury. The burning of foliage resulting from using strong lime-sulphur was quickly offset by the normal growth of leaves. It is probable that the burning of foliage resulting from the late oil sprays has no effect on the fruit crop or the health of the tree. Some of the leaves may fall off and the efficiency of the remaining leaves may be reduced by the oil. The growth of

Cluster bud stage on apple, when a 1 or 2 per cent oil emulsion spray was used without material injury to the foliage or fruit buds.

new leaves seems to offset this in a short time, however. To be on the safe side, we would advise against the application of 2 per cent oil after the cluster-bud spray until we know more about the effect on the foliage and fruit of the tree. At present the Missouri Station is giving a thorough test to applications of oil on the foliage of apple, pear, peach, plum and cherry. It is quite possible that we may be able to apply a mixture of oil, Bordeaux and lead at the cluster bud stage on apple to control scale and aphis, as well as apple scab and black rot. It would be a general combination spray for all sucking and biting insects and all fungus diseases present at that time. This would mean the omission of the dormant or delayed dormant spraying, and a considerable saving to the fruit grower.

Advantages of Lubricating Oil Over Other Sprays.

We cannot say definitely as yet that the sprays described above are more efficient than lime-sulphur or the miscible oils now in use. However, if the poor results sometimes noted with the old standard sprays are due to the use of insufficient quantities of liquid, the engine oil spray has the advantage. It costs only 12 per cent to 30 per cent as much as the strong lime-sulphur, and 8 per cent to 20 per cent as much as strong lime-sulphur plus nicotine sulphate, and 7 per cent to 18 per cent as much as Scalecide. Therefore, a grower can afford to put on more spray, thus increasing his chances for better results in the long run.

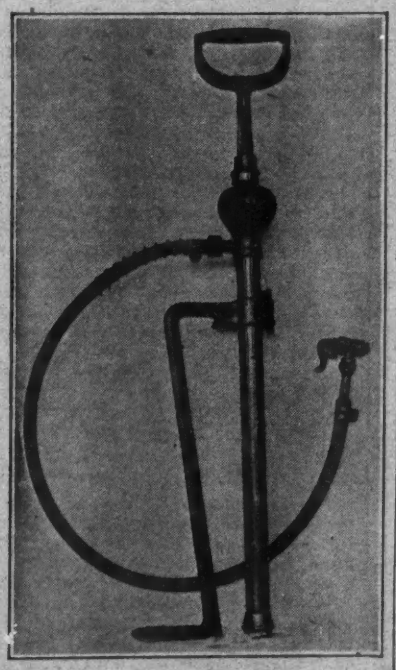
The cost of the home made emulsions has been figured on the basis of 16½c per gal. for oil, 10c per lb. for soap, 8c per lb. for copperas, 2c per lb. for lime, 8c per lb. for bluestone, 20c per lb. for Kayso, and 60c per lb. for saponin powder. The cost of labor has not been included. It would be very small.

From the table, it is apparent that the Missouri emulsions are even cheaper than those made by the Government formula. They are easier to prepare, as no heating is necessary. No great outlay for apparatus is required as old lime-sulphur barrels can be used as containers in making the stock emulsions. Trouble has resulted from putting oil-soap emulsions in barrels or tanks contaminated with lime or lime-sulphur. The Missouri emulsions mix freely with lime, lime-sulphur, and arsenate of lead, and can be used in hard water without trouble. If the oil separates it can be re-emulsified by pumping again.

Home Made Emulsions vs. Patented Miscible Oils.

It will be noticed that 100 gal. of Scalecide in the strength recommended for spraying costs approximately $4.97. The same amount of Dormoil would cost from $3 to $4. Compare this with 7 per cent home made oil-soap emulsion at $1.85 or 7 per cent home made oil Bordeaux emulsion at $1.25. Eight gallons of these patented miscible oils contain about 7 gal. of oil. It is quite possible that oils similar to our engine oils are the effective killing agents in the patented mixtures.

In the above, we have assumed that the two sprays contained equal concentrations of oil. However, a 2 per



Bucket pump used in emulsifying lubricating oils.

cent engine oil does the work of a 6 per cent to 8 per cent patented miscible oil; the difference in price is much more marked. Either we have been using a greater concentration of miscible oil than is needed, or the engine oils used are more efficient as insecticides than the oils in the patented mixtures.

Practically all the work done thus far at the Missouri Station has been in charge of A. M. Burroughs and W. M. Grube.

Cost of Various Sprays.

Spray Material.	Cost.	Dilution.	Cost per 100 gal.
Lime sulphur	20c per gal.	1-7	$2.80
Lime sulphur plus nicotine sulphate	$13.50 per gal.	¾-100	4.10
Dormoil	35c per gal.	1-15	3.04
Scalecide	F. o. b. Hood River 76c per gal.	1-12	4.97
Universal Brand, soluble oil	F. o. b. St. Louis	1-12	3.50-4.00
Rex Spray-Mulsion (59% oil)	30c per gal.	3%	.90*
Home-made oil-soap emulsion (66⅔% oil)		3%	.52†

Oil Emulsion Formulas, Mo. Agr. Expr. Station.

Home-made oil-Bordeaux emulsion (66⅔% oil)		3%	.35½†
Home-made oil-copperas lime-emulsion (66⅔% oil)		3%	.34†
Home-made oil-saponin emulsion (66⅔% oil)		3%	.48†

*1.77% oil. †Materials only.

Ride on Hasslers

WHY do more fruit growers equip their fruit hauling cars and trucks with Hassler Shock Absorbers than any other make?

There is one good reason:

Hasslers are the only shock absorbers which work *both* ways—check the rebound and absorb the bumps.

This means that no matter how rough the going, a load of fruit is protected from damage and bruising.

Your fruit may be perfect when it leaves your place, but unless it reaches the market in perfect condition your business and your profits are apt to suffer.

Hasslers are a necessity to the fruit grower. They not only protect your fruit but actually cut the cost of operation of your car or truck and give you more working days.

There is a proper type Hassler for every Ford model, and there is a Hassler dealer in your nearest town

Write for "An Auto Biography." This new Hassler booklet, sent free on request, will grip you with its human interest, no matter what car you drive.

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EXAMINE THIS FINE SPRAY HOSE

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Pick up the end of a length of Goodyear Spray Hose. Note how thick and strong its body is made, and you will better understand why this good hose carries high pressures safely and continuously without sign of wear.

Dig your thumbnail into its tough, thick cover. It is this coat that protects Goodyear Spray Hose when it is scraped against trees, when it is dragged over rough ground, through sand, and when it is exposed to the weather.

You will note that the tube, too, is made from a scientific compound, perfected by Goodyear, made capable of resisting the deteriorating action of strong solutions.

Then, unreel enough of this hose to satisfy yourself that it is light in weight and easy to handle, so that better and faster spraying can be done. It will cost you less to use Goodyear Spray Hose because it lasts longer than the ordinary kind.

See that you get Goodyear Spray Hose when you buy new spraying apparatus. See that you get it when you are preparing old apparatus for the spraying seasons. If your dealer hasn't it in stock, write to Goodyear, Akron, Ohio, or Los Angeles, California.

Goodyear Means Good Wear

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Our own organization throughout the world—not dependent on agents, representatives, branches or subsidiaries.

Mr. C. L. Lowe has recently been appointed our Pacific Coast Manager and will maintain our permanent offices at the West Side National Bank Building, Yakima, Washington. This places us in position to serve box apple interests better.

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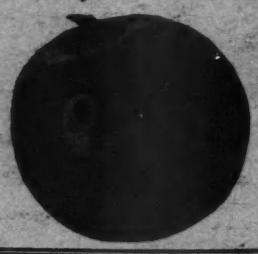

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WITH THE CO-OPS.

THE annual report of the General Manager of the American Cranberry Exchange, New York and Chicago, for the crop season of 1922, shows that the total number of barrels of cranberries handled was 373,315, as compared with 244,771, in 1921; 282,473 in 1920 and 231,032 in 1919. The percentage of the total crop handled by the Exchange for the past two seasons was 66 per cent, 64 per cent in 1920 and 59.5 per cent in 1919.

Total sales through the Exchange in 1922 amounted to $3,858,196. Expenses amounted to $169,173, including the following items: Overhead expense, $105,592; general expense, $37,790; travel, $5,615; office employees (New York and Chicago), $16,406; bad accounts, $3,768. As the sum of $196,335 had been reserved for expenses, there remained $27,161 to be refunded to the member companies in proportion to their sales. The ratio of expenses for 1922 and 1921 is shown by the following items, taken from the report: Overhead expenses (Managers' and Salesmen's salaries, brokerage, commissions, etc.), 2.737 per cent; office employees, .391 per cent; telephone and telegraph, .251 per cent; general expense, .873 per cent; bad debts, .098 per cent.

It has always been the policy of the American Cranberry Exchange to sell a large percentage of the tonnage early and by December 1st, 1922, 91 per cent of the cranberries had been sold. This is a remarkable record in face of the very large apple crop which the country had. It is also remarkable when one stops to consider the prices obtained. The total tonnage produced of cranberries in recent years and the prices received are interesting:

Year.	Total Crop.	Average Price.
1909	568,000	$ 6.15
1910	544,000	5.63
1814	638,000	3.97
1916	545,000	6.50
1919	562,000	7.86
1922	565,000	10.33

Previous to 1916 no advertising moneys were expended and it is interesting to note that the price fluctuated with big crops from $3.97 to $5.63 a bbl. but that beginning with 1916, with consistently heavy crops, the price has been maintained at a relatively high figure despite the fact that the tonnage was large. As the above table shows, the price ranged from $6.50 to $10.33 a bbl., showing that the advertising, the wide distribution and up-to-date merchandising inaugurated by the officers of the association were bearing fruit. The advertising has been cumulative in its effect. The amount spent in the past few years is as follows: 1916, $22,940; 1917, $14,911; 1918, $54,198; 1919, $122,697; 1920, $77,937; 1921, $73,563; 1922, $179,773.

The expenditure the past year for advertising was as follows:

Newspapers		$121,599.56
National magasines		27,311.40
Retail service		14,350.60
Printing, price cards, window cutouts, labels, etc.		10,650.53
Postage, express, etc.		2,728.06
Preparation of copy and plates		1,615.96
Publicity		518.46
Special retail advertising		104.00
Interest on borrowed money		123.54
Special outdoor signs on Cape Cod		271.50
		$179,773.61
Balance carried over from previous seasons	$ 5,726.63	
Balance season 1922-1923	2,457.05	
		8,183.68
Total		$187,957.29

The American Cranberry Exchange is the selling agency for three associations and certain other growers. The member associations are the New England Cranberry Sales Co., Middleboro, Mass., the Growers' Cranberry Co., Philadelphia, Pa., and the Wisconsin Cranberry Sales Co., Wisconsin Rapids, Wis. Of the 1922 crop the Exchange handled the following quantities for the different producing sections: Massachusetts, 193,348 bbls.; New Jersey, 130,758 bbls.; Wisconsin, 46,645 bbls.; Long Island, 2,569 bbls.

The American Cranberry Exchange should have the support of more than 66 per cent of the growers. All cranberry growers are reaping a benefit from the constructive work the association is doing. It is one of the finest examples of what organization can do to an industry that we can find in America.

IT is reported that the New York Canning Crops Co-operative Ass'n of Rochester, N. Y., is making an attempt to organize the cherry growers of western New York. It is reported that a large number of growers representing a heavy tonnage are lining up with the co-operative. There is a feeling that some canneries have formed a habit of quoting every year futures very early at a price which nets the grower less than he feels he is entitled to. It is felt that with organization all the cherries grown in various states can easily be disposed of at a price which will be profitable to the growers.

THE New Jersey Fruit Growers' Co-operative Ass'n is doing some constructive work to help speed up the delivery of peaches in northern New Jersey and adjacent territory this summer. Officers will be established in Newark, N. J., and also in the large consuming centers of northern New Jersey, eastern Pennsylvania and the Metropolitan area of New York. Buyers within motor truck or short haul distances will receive the peaches in fresher and better condition than was possible under former methods. The association has adopted a new title or brand and its fruit will be sold in the future under the "Jersey Jerry" brand instead of the "Blue Jay." A fleet of high-powered motor trucks as well as special express freight service will be employed by the association.

AT the annual meeting of the California Walnut Growers' Ass'n C. C. Teague was re-elected president; Carlisle Thorpe retained as general manager, and W. T. Webber retained as sales manager and secretary. These are the same men who have had charge of the association since it was organized.

This association now numbers over 4,000 walnut growers and in 1922 handled 80 per cent of the tonnage of the state. The cost of selling the huge crop last year, including advertising, brokerage, salaries, rent, other office expenses and field work was 5½ per cent of the opening price.

THE Federated Fruit & Vegetable Growers are going to handle much more tonnage this coming year than their strongest friends had hoped for. Nearly every day one hears of some new organization which is lining up with the Federated. The organization is to be congratulated that it is so early in its history winning the confidence of so many associations.

Crop Report

IT has been possible to gather more accurate figures than was true a month ago. Readers should still bear in mind, however, that many of the figures on apples, for example, have been gathered before the final drop is over.

While the apple crop over the country seems to be larger than a year ago, you need not be surprised if August figures will show it to be about the same size as last season. A number of states show considerable increase over the production of last year, including the Pacific Coast states like Washington, Oregon, Idaho and California, and in the east, Arkansas, Michigan, Ohio, Virginia, West Virginia, Pennsylvania and Maine. New Jersey, New York and Illinois and most of the central west show a smaller crop than a year ago. Figures as furnished by the United States Department of Agriculture are as follows:

APPLES.

	Cond. June 1,	1923 forecast from condition. Total	Com-merc'l	1922* Prod. Com-merc'l
	%	Bu.†	Bbls.†	†Bbls.
Maine	87	3,111	674	232
N. Hamp.	75	938	188	119
Vermont	87	845	127	128
Mass.	85	2,774	462	461
R. Island	85	298	22	12
Conn.	81	1,472	122	108
New York	85	29,762	5,754	6,000
New Jersey	78	2,160	468	522
Penn.	84	11,623	1,356	1,216
Delaware	64	805	225	213
Maryland	66	1,385	346	300
Virginia	48	9,778	1,793	1,100
W. Virginia	54	6,671	926	881
N. Carolina	50	3,556	178	236
S. Carolina.	55	285	...	...
Georgia	60	998	67	95
Ohio	74	9,778	815	608
Indiana	77	4,021	201	277
Illinois	79	6,715	784	1,620
Michigan	85	10,992	1,832	1,699
Wisconsin	91	1,893	126	101
Minnesota	91	1,176	47	41
Iowa	83	2,917	97	147
Missouri	77	6,071	607	1,250
S. Dakota	84	173	8	4
Nebraska	74	807	54	130
Kansas	63	1,609	268	546
Kentucky	57	3,705	99	169
Tennessee	45	2,336	54	95
Alabama	53	802	13	18
Miss.	50	222	...	...
Louisiana	55	40	...	...
Texas	65	324	13	150
Oklahoma	70	1,138	38	38
Arkansas	70	3,408	738	520
Montana	91	834	167	115
Wyoming	90	32	...	...
Colorado	88	3,171	846	1,034
N. Mexico	90	1,220	265	158
Arizona	70	104	10	9
Utah	95	941	188	198
Nevada	75	51	...	1
Idaho	96	4,611	1,307	975
Wash.	88	27,261	7,997	7,104
Oregon	90	6,940	1,619	1,260
California	76	6,384	1,383	1,200
U. S.	75.5	186,637	32,284	31,090

*December estimate. †In thousands, 000 omitted.

Peaches.

The peach crop will not be as large as last year by about 10,000,000 bus. However, some of the best producing states show an increase over last year, such as Georgia, Pennsylvania, New Jersey, Maryland and Texas, while New York, Michigan and Ohio will have big crops. The Rocky Mountain and Pacific Coast states report heavy yields but not as large as a year ago. The government report on peaches is as follows:

PEACHES.

	Cond. June 1.	1923 Forecast from Cond.	1922 Dec. Est.
	%	Bu.	Bu.
New Hampshire	90	42,000	32,000
Massachusetts	86	228,000	200,000
Rhode Island	80	26,000	28,000
Connecticut	73	199,000	262,000
New York	74	2,153,000	3,400,000
New Jersey	84	2,281,000	2,000,000
Pennsylvania	81	1,863,000	1,560,000
Delaware	60	161,000	320,000
Maryland	66	559,000	495,000
Virginia	38	522,000	764,000
West Virginia	42	557,000	715,000
North Carolina	28	515,000	1,008,000
South Carolina	46	461,000	845,000
Georgia	70	5,919,000	4,900,000
Florida	65	153,000	130,000
Ohio	70	1,440,000	1,584,000
Indiana	68	437,000	650,000
Illinois	55	758,000	1,100,000
Michigan	75	1,004,000	1,440,000
Iowa	60	55,000	200,000
Missouri	45	1,021,000	2,300,000
Nebraska	65	46,000	81,000
Kansas	20	108,000	630,000
Kentucky	50	661,000	1,218,000
Tennessee	35	762,000	2,002,000
Alabama	55	997,000	810,000
Mississippi	41	415,000	375,000
Louisiana	56	247,000	180,000
Texas	47	2,176,000	1,920,000
Oklahoma	55	1,404,000	2,070,000
Arkansas	35	1,079,000	2,040,000
Colorado	86	645,000	1,160,000
New Mexico	75	189,000	98,000
Arizona	60	85,000	128,000
Utah	92	746,000	885,000
Nevada	60	6,000	6,000
Idaho	93	294,000	244,000
Washington	80	1,120,000	1,125,000
Oregon	70	280,000	300,000
California	91	14,911,000	17,500,000
United States.	66.7	46,525,000	56,705,000

Pears.

The present forecast for pears is for about 3,000,000 bus. less than a year ago. Only a few states show an increase over last year, namely, New Jersey, Pennsylvania, Delaware and Maryland. The middle west and the south as a whole show considerable reduction over last year's figures. Likewise the Rocky Mountain crop is less than a year ago. While the Pacific Coast has a big crop of pears, nevertheless it is less than last year. The government figures on the pear crop are as follows:

PEARS.

	Cond. June 1.	1923 Forecast from Cond.	1922 Dec. Est.
	%.	Bu.	Bu.
Maine	80	10,000	14,000
New Hampshire	92	17,000	24,000
Vermont	86	10,000	10,000
Massachusetts	80	71,000	84,000
Rhode Island	82	10,000	12,000
Connecticut	74	47,000	60,000
New York	76	2,215,000	3,200,000
New Jersey	80	630,000	405,000
Pennsylvania	75	647,000	576,000
Delaware	60	170,000	158,000
Maryland	60	301,000	256,000
Virginia	29	164,000	270,000
West Virginia	33	39,000	38,000
North Carolina	23	75,000	110,000
South Carolina	55	94,000	104,000
Georgia	53	175,000	202,000
Florida	60	58,000	50,000
Ohio	70	371,000	450,000
Indiana	68	267,000	300,000
Illinois	68	422,000	510,000
Michigan	76	503,000	672,000
Wisconsin	89	17,000	19,000
Iowa	70	52,000	75,000
Missouri	58	362,000	450,000
Nebraska	73	26,000	27,000
Kansas	40	106,000	243,000
Kentucky	41	73,000	150,000
Tennessee	25	96,000	180,000
Alabama	50	148,000	176,000
Mississippi	43	102,000	190,000
Louisiana	55	52,000	48,000
Texas	50	381,000	390,000
Oklahoma	45	124,000	197,000
Arkansas	40	69,000	100,000
Montana	90	7,000	9,000
Colorado	90	328,000	519,000
New Mexico	50	40,000	18,000
Arizona	70	17,000	18,000
Utah	90	86,000	98,000
Nevada	58	5,000	4,000
Idaho	94	59,000	72,000
Washington	82	1,702,000	1,708,000
Oregon	80	858,000	1,260,000
California	75	4,300,000	5,205,000
United States.	68.6	15,306,000	18,661,000

Cherries.

There are no material changes in the outlook for the cherry crop over those published a month ago except for the state of New York. It now looks as though instead of a full crop there will be only half a crop of commercial sour cherries. Some frost before blooming time, coupled with the ravages of the cherry leaf spot disease are probably responsible for the big reduction.

Nova Scotia expects about an increase of 10 per cent in apple production over a year ago. Ben Davis, Greening, Northern Spy, King, Golden Russet and Blenheim all show a heavy crop, while the Baldwin crop will be medium. Western Ontario is now estimating an increase of about 25 per cent over the apple crop of last year.

The English crop report is not nearly as rosy as it was at blooming time. Many crops were damaged by frost at blooming time. Pears are practically a failure. The plum outlook at present is not very good. Cherries will be about 80 per cent of a crop. Apples, owing to serious insect damage, coupled with frost injury, are not as promising as at blooming time.

The Malaga, Spain, district expects a fine crop of grapes, almonds and figs.

To an Apple Worm

Curses on thee, little worm,
That we meet at every turn;
With your little boring nose,
And your smug and daring pose.
From our hearts we give thee curses
For you'll empty all our purses.

We are men, and you a worm,
But you'll find that we can turn;
You can fly and you can crawl,
But you'll find that we can maul.
We are onto you, my cutie,
And we're going to spoil your beauty.

Don't you know that you must travel,
Pack your grip and hit the gravel?
We'll be glad to say goodbye
And you know the reason why.
You make life one long sad song,
Be a sport and move along.

—Carrie P. Pierce

For Better Fruit—and More

1/3 more per dollar

TREE-planting with Dumorite produces a heavier yield of better fruit. A small charge of this new du Pont explosive breaks up the subsoil, making digging easy—its shattering effect puts great stores of plant food within easy reach, destroys fungus and nematode, and causes early maturity.

Of approximately the same strength as 40% dynamite, Dumorite gives you ⅓ more sticks per dollar. It is non-freezing and non-headache. Buy it at your local dealer's.

Write today for free 110-page "Farmers' Handbook of Explosives," with complete information covering tree-planting, land-clearing and ditching.

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AJAX TIRES

NEW features include every modern advancement in construction and design.

You obtain quality at its highest degree of perfection, and at no greater cost.

AJAX RUBBER COMPANY, INC., *New York*

The ten million automobiles in the United States carry 20,000,000 headlights—but they can't light 2,500,000 miles of highways.

Lanterns and headlights

City streets were once dimly lighted by lanterns carried by citizens or hanging over doorways. Now cities and many villages are lighted—outdoors and indoors—by electricity.

But public highways are still revealed to the traveler by the light of his own lantern or headlight.

Community lighting of highways is the next step.

Products of General Electric Company are used extensively by light and power companies. More than $700,000,000 of new capital a year is being devoted by these companies to the extension of electric service, which is rapidly becoming available in every section of the United States.

GENERAL ELECTRIC

That Association of Yours

by Tim and John

Packin' Costs.

SURE, John, that association iv your'n will be havin' to sell yere fruit fer more money," said Tim one day as they were working on the line fence together, "to be makin' up phwat it costs to pack it. Must be costin' a lot more to be runnin' all iv thim different soizes."

"Funny thing," said John, "it really don't cost no more to pack them different sizes than to pack them all together—fact is, not so much. With that packin' table they shove the fruit around to them six packers so all of them are busy all the time. If they had been packing 2½ and up like Schwartz does, they could only have two people packin' where the 2½'s come out."

"Faith and I don't be swallerin' all iv that, John, whin it cost yere association forty-foive cents a barrel to be packin' whin Schwartz down here be after chargin' only twenty-foive cents a barrel."

"That's easy, Tim, we were chargin' forty-five cents on what barrels were packed out, and Schwartz was chargin' twenty-five cents a barrel on the barrels that were brought in. Then, too, don't you remember that last year when you and I complained that even that twenty-five cents was pretty high, he told us he was losing money on it, but was doing it at that price part as accommodation to us and part to get the fruit?"

"Begorra," said Tim, "yez can't be making me believe that he was a losin' twenty cints a barrel."

"No, he didn't," promptly replied John. "We was havin' a discussion last fall on whether we'd spread our cost on packed barrels or door receipts and the bookkeeper had it all figured out. She figured it would cost forty-five cents this year on packed barrels and thirty-seven cents on packed barrels plus the culls figured 140 lbs. to the barrel, and figured on door receipts was thirty cents a barrel. Accordin' to that Schwartz was losin' only five cents a barrel."

"Sure, that bein' right, I be havin' yez both skinned," says Tim.

"How much does it cost you to pack?" asked John.

"I niver be figurin' it up," says Tim. "I be knowin' the cost ain't iny sich figure as that. Sure mesilf and me hired man and that feller George I had workin' for me last fall waz puttin' up 85 to 90 barrels in wan day on thim Baldwins. All I was after payin' was $2.50 a day to that feller, George."

"But, Tim, you had your hired man; he was costin' you something."

"Faith and he had to be workin' inyway—B'Jabers he'd be gittin' foired if he didn't."

"But that ain't the way to figure costs, Tim. Let's figure it out: $2.50 a day for George; you're payin' your hired man $60.00 a month—that's $2.50 a day—and yourself, Tim, how much are you worth?"

"As much as the nixt man."

"All right, we will put you down for $3.00 a day. Then your boy Mike was helpin' out, wasn't he?"

"Sure," allowed Tim, "he kipt us in barrels and caps, kipt himself busy a nailin' hoops and settin' back the culls, but that don't be amountin' to inything, much."

"Ay, Tim, you never know how much your boy Michael is worth to you. I never knew 'til my boy, Ben, was killed in that accident. Better put him down for $2.00."

"Be puttin' him down fer $2.50 if yere goin' to be puttin' him down at all. He waz a better man than that feller George."

"Then there was your wife, too, Tim. Wasn't Mary facing the barrels?"

"B'Jabers, I be forgettin' about her; sure, she's always helpin'."

"Well, Tim, we paid $3.00 a day down to the packin' house for women to face barrels. Mary was better than any woman we had. Supposin' we put her down at that. Then, too, Tim, there is the board of all these people. You forgot to figure that in."

"Faith and don't we be eatin' inyway whither we're packin' apples or not?"

"Yes, Tim, but you must remember that the packin' house didn't board any help. Our boys at the packin' house were paying $6.00 a week board and thought they were gettin' it dirt cheap. That's a dollar more a day. There's your hired man at $2.50, yourself at $3.00, George at $2.50, Mary at $3.00 and Mike at $2.50. That's $13.50 and a dollar a day board for you four men (we allowed Mary same price we were paying women at the packing house and board themselves) makes $17.50 a day. And how many barrels did you pack, Tim? 85 or 90? That's just $.20 a barrel just for labor, and that ain't all. You didn't pack that many barrels a day, did you Tim, on anything but Baldwins?"

"Yere roight," agreed Tim, "we waz only a gittin' out 'bout 50 barrels iv greenin's in wan day. Some days wazn't so good aither when we waz jumpin' 'roun bechune Twinty Ounce and Hubbardstons and Kings."

"Well," said John, "when you was only packing 50 barrels a day, they was costing you 35 cents a barrel just for labor."

"Grantin' yez that," said Tim, "I be havin' yez sthopped with $.45 yere chargin'."

"Well, I don't know. We're figurin' just labor and the labor in the packin' house figured on the packed barrel basis was only $.23. Our association was just average. At the district meetin' over in Phoenix a while back, the Central had all the associations compared and we were right in the middle. There was one association whose packin' charge was only 30 cents on packed barrels and of that only 15½ cents was for labor. That's got you skinned, Tim."

"Sure," agreed Tim, "but where do the rist iv the cost be comin' from? I be thinkin' packin' apples waz most iv it work. And be yez payin' fer somewan to sit around too?"

"No," said John, "it cost us 5 cents a barrel for our manager and he certainly was earning every penny of it keepin' everything straight. Our bookkeeping cost was 2 cents. Interest, depreciation, taxes, insurance, etc., was 9 cents. It cost us another 6 cents for trucking, telephones, supplies, such as stencils, grading tallies, door receipt books, etc."

"Sure," agreed Tim, "I'll be guessin' yeve got ivirythin' figured in and it may not be bein so bad after all whin yez come to be addin' all of thim things up. I'll be thinking it was near roight after all."

"But there's another thing, Tim, we mustn't forget. Mary was helpin' you pack daytimes and nights was helpin' your girl Katie in the house gettin' meals, washin' dishes and doing all the housework. Every night when I went in from pickin', all tired out, there was Susie singin' round, happy and cheerful, and it sort of cheered me up, Tim. I learned that it don't do for both Susie and me to get tired at the same time. Sparks fly like when we both get done up. But I've found it ain't so bad to work hard if when I come to the house Susie is feeling chipper."

"Uh-Huh," was all that Tim could say for he was thinking of how Mary used to look that first year they were married before all the children came, and before she got into the habit of helping in the orchard.

"Faith, John," said Tim, as they got together again after dinner, "and do yez be havin' iny new-fangled machines at yere packin' house to be takin' off iv thim twigs an' leaves? I be after thinkin' that I'd be beatin' yere packin' cost last fall but for thim spalpeens pickin' me orchard, throwin' iviry thing but the roots in."

"No," replied John, "the fact's this, instead of havin' to hire a bunch of these floaters to pick and leavin' them all alone out in the orchard, my hired man and I did most of the pickin'. By doin' it more careful we don't get them twigs in. I figure that bein' right there in the orchard I get a lot more apples into the barrels and less on the ground for one thing, and I get a lot of fruit spurs left on the tree for next year."

"Then, there's another thing," continued John, "that I liked about the Association this year, and that was I had a place to put my fruit."

"Don't you remember four years ago, Tim, that year we all had the big crop, how we was frettin' and stewin' not knowin' what we was going to do with them? I couldn't sleep nights there for a week wonderin' what to do with them. This year, bein' in the association, there wasn't nothing like that at all, and yet there's Sam Williams over on the Hollow Road; this year he couldn't find no market at all for his peaches or early apples. That cash buyer that was in here did pick up his Baldwins and Greenin's but he wouldn't take nothin' else. Yes, I figure it's worth something to know we got a place to put the fruit when it's ready to come."

"That's me raison fer sellin' airly," said Tim, "gettin' it off me moind."

"Just sellin' them ain't all," said John, "it's a place to put them after you got 'em sold. 'Member two years ago when Schwartz had us loadin' them peaches direct into the car, how we stood around waiting to get unloaded. Why, my hired man one day started before breakfast figurin' to get back in time to eat. He never got home until after dinner and wasn't much good the rest of the day—kind of sore like. This year I was drawin' four loads a day regular."

"Uh-Huh," says Tim, for he was thinking.

"I didn't tell you all about that packing charge this morning, Tim."

"I thought you'd be thinkin' iv some more," said Tim hopefully. "It waz scarin' me, first, figurin' it wasn't costin' yez no more'n me. Phwat yez be thinkin' of now, John?"

"Well, it wasn't other charges that I hadn't give you, Tim. It was figurin' on how we were plannin' to cut down them charges. That committee up at the Central that's been workin' on this thing found two associations whose cost of packin' was only 30 cents on their packed barrels and 'round 26 cents on their packed barrels plus culls."

"And how would they be doing it cheaper?" interrupted Tim. "Wouldn't they be packin' so good?"

"Yes, they packed just as good—leave that to them inspectors. In the first place our fruit was only average quality. The association that had the highest quality fruit had the lowest packin' costs."

(*Concluded on page 27.*)

The Orchard Home Department

by Mary Lee Adams

A Well-Nourished Family

EVERY housekeeper would be offended if it were suggested that her family was not well-nourished. They certainly have plenty to eat. Though doctors and dietetics have taught that plenty to eat does not always constitute good nourishment, the idea still persists that a loaded table means a good meal.

Many eat too much and yet are not well-nourished. As a rule the overfat or over-thin lack balance in their diet. There may be exceptions, as in those remarkably tough but excessively slender specimens who have been described as belonging to "the shingle breed." And there are very fat people who can prove that they do not eat as much fattening food as their thinner friends. Yet the rule holds in most cases.

The eyes of a school-boy, home for the holidays, glistened as he saw fresh green vegetables served on the table. He said he was "so hungry" for them. He'd had more than he could eat at school, always meat and two vegetables for the main meal of the day, but the two vegetables were invariably potatoes and either dried beans or dried peas.

Meat and eggs, milk, potatoes, beans, bread, sweets are important, even necessary, but so also are fruits and vegetables. Orchard women should have the resource of home-grown fruits and a vegetable garden from which to draw wholesome and tempting food during the summer.

They should in addition grow such vegetables as can be dug or stored through the winter. It is very important, too, to put up a portion of the summer's abundance for use later on. While nothing quite equals in deliciousness freshly gathered "garden sass," yet canned fruits and vegetables retain much of their appetizing and healthful qualities. They add materially to good health as well as to economy.

A Movie in a Cow Barn

IN days gone by, the problem of "getting there" was a serious one for country people. Any considerable number of miles was too much for the farm horses, the roads were apt to be bad, and the expedition took too long and was too inconvenient. Now a very large proportion of farmers own a car and those who do not can generally arrange for a seat in a friendly neighbor's flivver.

The difficulty of a suitable place for holding community meetings has also been largely done away with through the growing habit of using the school house for such purposes. Yet when this is not available there is no cause for discouragement if the community shows the spirit that has, in more than one neighborhood, converted empty lofts or barns into centers for happy gatherings. Rural life has been greatly enriched by these opportunities for getting together.

A splendid community success was initiated by John Armstrong Chaloner, who owns a dairy farm at Merry Mills, Va. In the cow barn he installed a moving picture show. So quickly did the large neighborhood learn to depend upon this cheerful innovation that, when it was proposed to close it for the summer months, they felt it was a pleasure they could hardly bear to forego.

A round robin was written to Mr. Chaloner stating that the happiness of people for miles around had been materially increased by the movie. They begged the privilege of continuing the show and of meeting expenses by asking a small admission fee. This was granted and The Merry Mills Movie is now incorporated under the laws of the state.

Admission fees of 10 cents for adults and 5 cents for children, have more than paid for the hiring of first class films, the salary of the operator of the machine, of the piano player and for incidental expenses like purchasing extra chairs, etc. An added feature has been the privilege offered in turn to every church in the vicinity to sell ice cream on the Wednesday and Saturday evenings when the pictures are shown.

Grave-Digging Popular

WHEN he emerged into the light of day after 3,000 years, King "Tut" set the fashion, not only in dress but in occupations. Grave-digging never appealed so strongly as at present. It has become popular—very popular with the diggers, presumably a matter of indifference to the dug but, with the on-lookers, highly unpopular.

In the diligent exhuming of bones in an English churchyard that is being conducted by Edward Page Gaston of Chicago, many of us find ourselves in sympathy with the sentiments of the onlookers. The digging up of many skeletons in St. George's graveyard at Gravesend, England, is not made acceptable by Mr. Gaston's claim that he is seeking ancestral relics. Others too have ancestors in the churchyard whom they would much prefer to leave at rest in peace.

Just what end would be served even if the doubtful identification of the skull of Pocahontas were made, is somewhat obscure to the lay mind. What is plainly evident is that the feelings of the inhabitants are outraged. In spite of official authority for the search, resentment runs high at seeing the rector's wife decorating or, if you prefer the word, desecrating one end of a flat tombstone with breakfast dishes, while the other end is used as a resting place for neat little piles of unearthed bones.

We appear to have advanced a long, long way from the ancestor worship of some peoples whom we regard as inferior. The question is being asked if we have come too far.

Rose in Bloom

AN old barn at my home is covered with a gay, pink, climbing rose. Not content with showering blossoms all over the outside of the rough building, it has poked its impertinent little shoots right through the cracks in the wall and brought them to perfection of bloom on the shady inside.

A noticeable thing about this is that the flowers inside the building form larger heads, and are of a fresher and deeper color than those outside. They also last from two to three times as long without showing any sign of fading or withering.

It is a temptation to try training some roses in this way and, while the roots remain outside in the sun-warmed ground, to induce the blossoms to make a lovely bower of some room. Will anyone who feels this temptation and yields to it, kindly write me the result of their experiment?

"Alas for him who never sees
The stars shine through his cypress trees!
Who, hopeless, lays his dead away,
Nor looks to see the breaking day
Across the mournful marbles play!
Who hath not learned in hours of faith
The truth, to flesh and sense unknown,
That Life is ever lord of Death,
And Love can never lose its own!"

THE SET OF THE SAIL.

One ship sails east and one sails west
By the selfsame wind that blows,
It's the set of the sail and not the gale
That determines the way it goes.
Like the winds of the sea are the ways of fate,
As we journey along through life.
It's the set of the soul that determines the goal
And not the stress or the strife.

Social Workers Prove Their Worth

THERE has been nothing more calculated to impress one with the larger part that women are taking in the work of the world today than the meeting together of between 4000 and 5000 delegates to the National Conference of Social Workers which was held in Washington, D. C. in the early summer. While there were not wanting examples of splendid men, devoted as are the women to the service of mankind, yet, as is natural for many obvious reasons, the women far outnumbered them.

To the most casual observer, several interesting things were apparent. First it is evident that the aims of the various branches of this great organization appeal to women of widely different temperament, age and station. Some of the most famous and ablest of our country's women were prominent in the proceedings. The laughing groups of attractive, well-dressed girls were not less earnest and attentive at the meetings than were their older and more sedate sisters.

Strikingly absent was what may be called the "freak element" which, some years ago, would have been prominently featured by every cartoonist in his presentation of the assemblies. As some one put it, "They look just like other nice people, only more so."

Modern Workers in Old Field.

After listening to many of the addresses and discussions, the most dubious or scornful must have had it borne in upon him that, after all, these women were doing just what the best women of the world always have done, namely, looking out for the welfare of humanity in general and of children and unfortunate persons in particular.

True, the field of endeavor has been widened beyond the confines of the individual home, but the motive which prompts these women to organized public effort is the same as that behind the instinctive actions of the primitive tender mother, or the sympathetic helper of the distressed in every humblest hut since civilization began.

Common Sense Prevails.

But those outsiders who came expecting to detect a silly or sentimental note, were destined to a surprise in the sturdy common sense which marked even the most enthusiastic utterances. These women believe that "the way out is the scientific, not the emotional way." They have not fallen into the error of taking themselves too seriously, and in this lies salvation and the promise of progress.

While the work is taken seriously enough, the service they render is treated quite simply as a matter of course. This wholesome attitude in regard to themselves was fully demonstrated in the entertainments and playlets which the delegates presented most amusingly during the days of the conference.

Much good-natured fun was poked at themselves and each other, but the spirit of give and take was genuine and jolly as at a care-free gathering of college boys. The social worker comes face to face with many somber facts but faces them with so brave a smile that a gleam falls across them. This is a good example for all to follow when dealing with sad or difficult situations.

A Power for Good.

Very inspiring it is to learn of the things that are being done for the sick, the poor, the helpless, for children, for those unfortunates who, by reason of lack of strength of body or mind, have fallen into folly or crime. The helping hand is held out to all of these collectively and to each one as an individual. And the help is constructive. It is designed not merely to support the weak, but to teach them, so far as possible, to stand on their own feet.

The spirit of self-righteousness does not enter in. As one of the speakers wisely said: "The altruist who allows his altruism to appear is a sadly unpopular person." And rightly so. The world will have none of him. Even the sufferer turns away from aid offered in this spirit.

Perhaps in the old days, there was a bit more sanctimoniousness about the attitude of such workers. But this has passed as it naturally would. Social work ceased to be the spontaneous impulse of good-will on the part of ladies who used to take poor old Sallie a little basket of provisions every Saturday afternoon, when they remembered it, and the workers became part of a great organized enterprise, each one trained in his or her special line. As one of the most diverting songs sung at the Social Worker's Follies Show proclaimed, "Social work is not what it used to be since Science took us in."

We May All Take Some Part.

Lots of encouragement comes to those who are trying to apply the principles of social service to every day life, from the words of Dr. Williams, brilliant scientist in the field of mental hygiene. "I look confidently" said he, "to the day when the knowledge that trained minds of the present have acquired through long and earnest study and effort shall have become common property and will be practiced by all. At that time you students in this special field will have advanced to a finer, fuller and higher measure of knowledge and efficiency."

Who Serves Best Rules Best.

Now it seems to me that here is another lesson to be learned besides the beautiful lesson of service. It may be expressed in the words "He who serves best rules best." Probably few of the women workers cherish any kind of political ambition, yet note this, through their combined effort for good they have become a force that even professional politicians hesitate to disregard.

If you doubt this, read the reports of the greetings extended to them by those in power from the President down. What they want they may ask for with the assurance of, at least, a respectful hearing and consideration. As their wishes are for the advancement of human welfare, this means a step forward for our nation.

And not for ours alone. Delegates from 18 nations were present at the conference. Here sat the woman from India, with banded forehead, romantic, somber eyes and dark, sweet face. Not far off, sprinkled throughout the great assembly, were representatives from far corners of the earth. Turkey and France, England, Germany, South America, Poland, many friendly individuals from enemy countries, united in harmony for the good of the world.

A Far Reaching Influence.

Can any one reasonably doubt the far-reaching influence for peace that this common interest in a common cause exerts? It makes for a better understanding all around, and so true is it that most quarrels come from lack of understanding that the very words "a misunderstanding" and "a quarrel" have practically the same significance.

Secretary Hughes, in his warm address of welcome to the delegates, stressed the value of their work in removing the causes of international strife. Among other good things, he said, "It is one thing to address governments; it is quite another and more difficult to reach the heart of people, but this must be done if we are to be of aid in removing the causes of strife."

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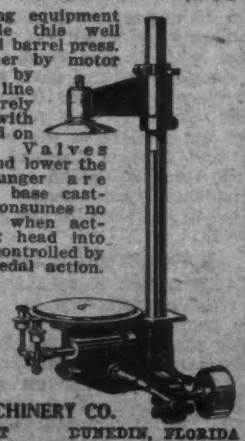

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CHATS WITH FRUIT GROWER'S WIFE

By HAZEL BURSELL

Labor Saving Devices

FATHER buys a new tractor, or new improved plow or drill because it makes for efficiency in his work. But Mother—well, mother gets along with the same lack of conveniences and tools that her pioneer grandmother did. But this should not be the case, as mother should be able to conserve the strength now wasted in drudgery to develop other phases of her home life.

Mother needs some labor saving devices. They need not cost a fortune, but they will be worth one to mother and the whole family in the long run.

Pick Real Labor Savers.

But we should take care in choosing labor savers for many articles sold under that name are not labor savers at all. They come under four general classes—those that save actual work, those that save fuel, time savers and step savers. Ask yourself these questions before buying a piece of equipment:

Does it cost too much for the use I will give it? Is it properly constructed from good material so as to give good service? Does it do what it is expected to do? Can it be used for more than one purpose? Can it be used frequently or is it suited to only one type of work which is performed at rare intervals? Is it easily cleaned? Is it easily stored?

Listed below are some labor savers which every farm home should have, and they are within the reach of the homes of moderate incomes:

Water supply in the house; kitchen sink with drain; zinc-covered table; kitchen cabinet; dumb waiter to cellar; iceless refrigerator; wheel tray; step ladder; high stool in kitchen; window screens; working surfaces suited to height of worker; screened kitchen porch; linoleum on kitchen floor; fireless cooker; pressure canner; carpet sweeper; vacuum cleaner (with electricity); washing machine; clothes wringer; clothes-pin bag; bread mixer; steam cooker; dustless mop; dust-pan (long handle); good clock; scales; dish drainer; can opener; large egg beater; kitchen grindstone; measuring cups; funnels; double boiler; soap dish; soap shaker (for small pieces); rubber plate scraper; vegetable brush; covered garbage pail; food grinder; potato ricer; spatula; baking sheet; meat saw; wood lift; good knives; paper and string in kitchen; housewife's tool kit.

Wear Comfortable Shoes.

Other things will save the time and strength of the worker if they are applied. She should wear shoes which fit comfortably. A correct posture when doing any piece of work saves much fatigue. Simple and durable construction of clothing increases the wearing quality and comfort, and decreases the time and labor for care of them.

If you can't have a water supply in the house, at least have it pumped to the back porch. When the water supply is outside the house many long trips can be saved if the water pail is located in the kitchen. It is often wise to have more than one pail. A half-gallon cup near the pail often saves steps and energy in lifting the heavy pail every time a little water is needed.

Choosing Dress Decoration

HAVE you ever been puzzled when planning a dress as to just what kind of trimming to put on it? If you haven't and always have good-looking clothes, then you are akin to a genius, and this article will have no attraction for you.

But for the average housewife and mother, a few suggestions and explanations of the principles of good decoration will not be amiss.

One of the first and biggest principles is that decoration should emphasize and make stronger the structural lines of the garment (seams, panel edges, hems, etc.). Do not just place a spot of embroidery on the skirt of a dress without any apparent reason. This brings us to another design principle—all decoration should seem to have some purpose. Bands should border something, bows should seem to tie something, and buttons should button something, or follow structural lines.

Avoid Too Many Kinds.

Too many kinds of decoration on any one garment will give a confusing, "messy" effect. Do not put embroidery, lace, ribbons, buttons and a contrasting material all on the same dress for trimmings. Lace with a touch of embroidery would be charming on certain types of garments, especially the dainty, sheer types. Ribbons seem to belong with lace. Buttons are more suitable for the tailored dresses and suits.

The design chosen should be suited to the material and to the style of the garment. Naturalistic flowers never look right on heavy dark wool dresses or on straight-lined sports clothes. A monogram or some geometric figure belongs on these types. Floral designs may be very pretty on the daintier, delicate colored dresses and "undies," but do not try to make them look just like the natural flower as it grows in the garden. We never can make them look natural out of thread and cloth, so we just don't try. A smart, but simple design, that frankly does not try to have all the curves of nature's product is much prettier than the "trying-to-be-natural" flower.

Another thing to remember is that the decoration should not limit the use of the garment. If you have ever owned a dress or coat with a row of large ball buttons down the back you will appreciate this suggestion. Great, huge sleeves will also often come under this ruling.

Variety in Application.

There should be some variety in the application of the chosen design to the different parts of the dress. That is, don't place the same, identical design on the sleeves, skirt, pockets and collar. Use the same motif, but apply it differently to the different parts. Be careful to see that all go together nicely and do not go to the other extreme and have too many variations. That would be worse than monotonous repetition.

You can have a lovely design and pretty materials to work it out in, but if you place that design on the wrong type of material—for instance, silver beads on a rough wool dress—then you have spoiled the whole creation. In other words, you can have a nice decoration and spoil it through association with the wrong thing.

Decoration and Becomingness.

The way the decoration is put on and the type of decoration has much to do with the becomingness of your frock. A design which emphasizes long lines up and down will add height to the figure and is therefore good for stout persons. Designs going around the garment are good for the "skinny" sister, other things being true. A person with an angular face and square jawbones should not

emphasize this fault with a design running across the shoulders, nor should she wear a big bow laying across the front. Designs may be so placed on the hips, bust line or shoulders as to break the wide expanse on the stout person and make her appear much better proportioned.

We should remember that mere prettiness is not beauty—prettiness is from without and appeals to the senses only while beauty has an aesthetic appeal and comes from within. Then, too, there is a difference between decoration and ornamentation. Decoration enriches the garment, while ornamentation exists only for itself—you will see it instead of the garment as a whole.

The Iceless Refrigerator

YOU need not be without a refrigerator just because you live in the country and cannot secure ice conveniently. Your son, or the man of the house can easily make a refrigerator which requires no ice and still will keep an inside temperature of 50 degrees on the hot summer days.

Here is an exact description and set of instructions gotten out by the United States department of Agriculture:

"Make a screened case 3½ feet high with the other dimensions 12 by 15 inches. If a solid top is used, simply place the water pan on this. Otherwise fit the pan closely into the opening of the top of the frame and support it by 1 inch cleats fastened to the inside of the frame.

Shelves Rest on Cleats.

"Place two movable shelves in the frame, 12 to 15 inches apart. They will rest on wall cleats also. Use a biscuit pan 12 inches square on the top to hold the water, and when using the refrigerator have it standing in a large pan to catch any drip. The pans and case should be painted white, allowed to dry and then enameled.

"A covering of Canton flannel should now be made to fit the frame. Have the smooth side out and button the covering on the frame with buggy or automobile curtain hooks and eyes, arranged so that the door may be easily opened without unfastening these hooks. This can be accomplished by putting one row of hooks on the edge of the door near the latch and the other just opposite the opening with the hem on each side extended far enough to cover the crack at the edge of the door, thus keeping out the warm outside air and retaining the cooled air.

Strips for Wicks.

"The dress covering will have to be hooked around the top edge also. Two double strips one-half the width of each side should be sewed on the top of each side and allowed to extend over about 2½ or 3 inches in the pan of water. The bottom of the Canton flannel should extend to the bottom of the case."

Anyone who can hit a nail on the head, saw straight and measure, can make one of these refrigerators for mother at very little expense. Then all you have to do is to keep the top pan filled with water, which will seep down the sides of the case through the flannel coat and in evaporating will take up heat from the inside of the case, thus lowering the temperature. The family supply of butter, cream, milk and meat may then be kept cool and fresh in mother's iceless refrigerator.

Household Hints

To Save Useless Polishing.

A GOOD polish for silver, brass, copper, nickel, and aluminum is an essential piece of equipment, but the cleaning of many metal articles may be reduced to an annual or semi-annual performance by the use of a transparent lacquer. First clean and polish the article thoroughly; then paint it lightly and quickly with the lacquer. If not handled too frequently the shine remains for many months. If you wish to repolish it, you must first remove the lacquer coat with alcohol. This treatment is excellent for nickel bathroom fixtures (except the much-handled faucets), brass candlesticks, vases, etc.

Gas or Oil Stove.

A GAS or oil stove will be found one of the best friends the farm mother can have during the hot summer months. With it she can prepare a meal without "cooking" herself and heating the house all up in the process.

Fruit Beverages for Summer

With the heat of summer comes a universal longing for cool, refreshing beverages, and no one has a better opportunity to satisfy this longing with delicious, wholesome drinks than the Fruit Grower's wife, with her wise choice of fruits. The ones who do not have the fruits think with envy of the ones who do, and the ones who are so fortunate should make the best use of their opportunities. All right, then, here's a few choice fruit beverages which are inexpensive and easily made. Try them out and see if you don't have an enthusiastic chorus of "Bravos" from The Family.

Grape Nectar.

½ c. grape juice. Juice half lemon.
½ c. water. 2 T. sugar.
Juice half orange.

Ice it and serve as a drink or freeze for grape ice.

Orange Punch.

1 c. juice. 2 qts. water.
¾ c. syrup.

Prepare juice by extracting from two oranges to each lemon, strain and measure. Combine ingredients and pour over block of ice in punch bowl.

Orangeade.

1 T. orange juice. 2 t. syrup.
1 t. lemon juice. ¼ c. water.

Mix, strain and serve with bit of ice. Serves one portion.

Strawberry Punch.

¼ c. syrup. 1 T. lemon juice.
3 T. strawberry juice. ½ c. water.

Mix, strain and serve iced. This amount serves one portion.

Lemonade.

1 T. lemon juice. ½ c. ice cold water.
1 T. sugar or syrup.

Mix, strain through puree strainer. This amount serves one portion.

Grapefruit Cocktail.

Shred the pulp of 2 large grapefruit into fine particles, carefully rejecting all of white membrane, and place in china bowl, adding 4 heaping tablespoons of powdered sugar, 4 or 5 drops of cider vinegar, a little grated nutmeg and the pulp of 3 tart oranges; allow the ingredients to stand in the ice chest over night (so that a rich syrup may form), and when ready to serve put into tall, slender glasses, placing on each portion one or two red cherries. Add a little more if desired.

Lemon Juice Canned.

Where lemon juice for sherbets in tea rooms is wanted, can juice when lemons are cheap. Sterilize jars, heat juice in double boiler just below boiling. Seal.

Lavender Punch.

Boil 2 cups of sugar in 1 pt. of water 10 min.
Add ½ c. freshly made tea.
Add juice of 3 oranges and 3 lemons.
1 qt. grape juice.
2½ qts. water.
1 pt. can of pineapple pulp and juice.
Serve ice cold in punch bowl.

Iced Tea.

To 1 gallon of strong tea add juice of 4 lemons sweetened to taste while hot. When thoroughly cold and just before serving, fill glass half full of shaved ice. Then fill with tea. Place a shaker over glass and shake vigorously. When through, a foam will rise on top. Garnish with a sprig of mint or lemon rind.

Irish Moss Lemonade.

½ c. Irish moss. 2 c. boiling water.
4 T. lemon juice. Sugar to taste.

Soak, pick over and wash moss, soaking one-half hour. Pour off water, add boiling water. Cook until syrupy. Cook below boiling point. Strain, add lemon juice and sugar to taste. Serve hot.

Pineapple Eggnog.

1 egg.
2 T. cold water.
½ c. finely crushed ice.
Syrup.
2 T. juice pressed from fresh pineapple.

Beat egg slightly, add water and fruit juice; strain over crushed ice and sweeten to taste. Pineapple contains a ferment which digests proteids (albumin in white of egg).

Syrup for Sweetening.

1 c. sugar. ½ c. water.

Boil rapidly 7 minutes. Cool and put up in bottles for use.

c = cup. lb. = pound.
t = teaspoonful. qt. = quart.
T = tablespoonful. pt. = pint.
All measures are level.

When the Rain Comes Down What Do You Think About?

Do you think how much good the rain will do the crops growing in the fields—or do you wonder how much harm it will do the crops stored in that barn with the leaky roof?

Why not lay roofings you don't have to worry about?

Barrett Roofings hold staunch and weather-tight year after year. Winter snows, spring thaws and rains, the scorching heat of summer suns—Barrett Roofings stand fast against them all.

For nearly three-quarters of a century—since before the Civil War—The Barrett Company has consistently maintained the high quality of its products and has been recognized as America's leading manufacturer of roofings and roofing materials.

Whether it's durable, low-priced roll roofing for your barns or handsome, sturdy, fire-resisting shingles for your house, you'll find the roofing you want among the six styles described below. Here are roofings that will save you money and give long years of satisfactory service.

Let Us Send You This Interesting Little Book

"Barrett Handbook for Home Owners and the Farmer" describes the right roof for your home, barn, or other steep-roof building. Shows how Barrett Roofings look when laid and tells about each in detail. Also describes other useful Barrett Products that will save you money.

Barrett ROOFINGS

Your Choice of Six Styles

Everlastic Giant Shingles

These "Giants" for wear and service are handsome enough for the expensive home, economical enough for small farm house or cottage. Their weather side is mineral-surfaced in beautiful shades of red, green, or blue-black. This fadeless mineral surface resists fire and never needs painting. Their base is extra heavy roofing-felt thoroughly waterproofed. Because of this extra-thick, extra-rigid base, these shingles can be laid right over the old roof—a big saving on reroofing jobs. Size 8 x 12¾ inches. Are laid easily and without waste.

Everlastic Single Shingles

Mineral-surfaced in red, green, or blue-black. Base of best grade roofing-felt. These shingles are staunchly weatherproof, fire-resisting and need no painting. Size 8 x 12¾ inches.

Everlastic Smooth-Surfaced Roofing

The most popular of plain-surfaced roll roofings. Made of best grade roofing-felt, thoroughly saturated with high-grade waterproofing material. Under surface is protected by rot-proof sealback. Tough, pliable, elastic, durable, and low in price. Easy to lay. Nails and cement in each roll.

Everlastic Mineral-Surfaced Roofing

A beautiful and enduring roll roofing. Mineral-surfaced in red, green, or blue-black. Has rot-proof seal-back. Nails and cement in each roll. Very popular for bungalows, cottages, garages, and all farm buildings.

Everlastic Multi-Shingles

Four shingles to a strip. Mineral-surfaced in red, green, or blue-black. Two sizes—10 inches and 12½ inches deep, both 32 inches long. The 12½-inch Multi-Shingle, laid 4 inches to the weather, gives three-ply roof—the 10-inch gives two-ply roof.

Everlastic Octagonal Strip Shingles

The latest in strip shingles. Mineral-surfaced in red, green, or blue-black. Afford novel designs by interchanging red strips with green, or red strips with blue-black.

Ask your dealer or write us

The Barrett Company

40 Rector Street New York City

THE BARRETT COMPANY, LIMITED, 2021 St. Hubert St., Montreal, Quebec, Canada

St. Louis smoker move into second place

With 405 cans to his credit Mr. Thurston smokes his way towards the lead

Mr. Byron Thurston of St. Louis is more than qualified for membership in the Edgeworth Club. But his position in the championship-smoker class is not so well established. Mr. Thurston's interesting letter follows:

Hotel Garni, St. Louis, Mo.

Larus & Brother Company,
Richmond, Va.

Gentlemen:

I have often heard of great smokers of one kind of tobacco.

I have smoked 405 cans of Edgeworth Plug Slice 35c size without changing.

Now if you know of any better record I would be glad to hear from you. I smoke one can of tobacco in two days and enjoy every pipeful.

Yours truly,
(Signed) Byron Thurston.

More than a year ago an Edgeworth smoker from Burlington, Vermont, Mr. H. F. Baldwin, wrote in suggesting that he had smoked more Edgeworth than any other living man. At that time he had smoked over 1000 cans of the same size purchased by Mr. Thurston, distributed over a period of nearly a score of years.

So while it appears today that Mr. Thurston is well behind the leader, if he continues smoking a can every two days, it may be only a matter of years before he will be well in advance of the entire field.

Still, it is a big country and there are a lot of Edgeworth smokers. You can never tell when a new record will be hung up to be the envy of all smokers.

Edgeworth has something about it that holds smokers.

Not that everyone likes Edgeworth, but those who do generally remain steadfast in their loyalty to the tobacco year after year.

If you have never tried Edgeworth, Larus & Brother Company will be glad to send you free samples of both Edgeworth Plug Slice and Ready-Rubbed.

Then you can smoke a few pipefuls and judge for yourself whether or not the tobacco is as good as a great many veteran pipe smokers claim it is.

Just drop a postcard to Larus & Brother Company, 83 South 21st Street, Richmond, Va., and the free samples will be forwarded to you promptly.

If you will also include the name and address of your regular tobacco dealer, your courtesy will be appreciated.

Edgeworth is sold in various sizes to suit the needs and means of all purchasers. Both Edgeworth Plug Slice and Ready-Rubbed come in small, pocket-size packages, in attractive tin humidors and in handy in-between sizes.

To Retail Tobacco Merchants: If your jobber cannot supply you with Edgeworth, Larus & Brother Company will gladly send you prepaid by parcel post a one- or two-dozen carton of any size of Plug Slice or Ready-Rubbed for the same price you would pay the jobber.

Farm Home Sewage Disposal

by E. W. Lehmann

IN the matter of health one of the greatest problems is to protect people against themselves. The careless handling of human wastes is one of the greatest causes of disease. Sanitary laws for protecting communities have been in existence since the time of Moses, yet there are many individuals who give the matter little or no thought. One of the most important steps in modern city development has been the satisfactory disposal of sewage and other wastes. The death rate has been greatly reduced in many cities where the water supplies were improved and an adequate sewage system provided.

The careless attitude of many farmers in regard to the problems of sewage disposal is due for the most part to their isolation. To allow human discharges to be scattered on the surface of the ground is given little thought, yet this practice is the cause of typhoid fever, hook worm and other summer diseases. Where running water is not available a sanitary outdoor toilet should be provided. A plan of a satisfactory type can be secured from the Farm Mechanics Department, University of Illinois at Urbana, Ill., at a cost of 10 cents.

Where a complete water system is to be installed in a farm home, the first consideration should be the system of drainage and the proper disposal of wastes from the sanitary toilet and other fixtures. The septic tank has proven to be the most satisfactory system of disposal under most conditions. When there is a fairly large stream of water the sewage from a single house can be discharged into it with a fair degree of safety. However, to discharge the sewage onto the surface of the ground or into a small stream is very objectionable and is very dangerous to the health of the community.

Many leaching cesspools have been used in the past to take care of sewage from isolated homes. Under certain conditions this type of disposal is safe; under other conditions it is very dangerous. Where there are shallow water supplies, under ordinary conditions, or where the soil is underlaid with limestone, there would be danger from this method of disposal. The sewage under ordinary conditions as it flows from the house is more than 99 per cent water and less than 1 per cent solids. While there is only a small amount of solid material in sewage, it is very objectionable if not treated. The septic tank is a sewage treating plant. Some people have the erroneous idea that some chemical must be added to the tank to make it work properly; such is not the case. As the name indicates, the septic tank is a tank in which septic or bacterial action takes place. In other words, when a septic tank is used we are taking advantage of the help of millions of friendly bacteria that delight in working in a dark tank. They thrive best when without light and air. The solids that enter the tank are broken down and a heavy scum forms on the surface of the contents of the tank. Practically all of the solid matter is liquefied by the action of the bacteria and a small amount of sludge will accumulate in the bottom of the tank which has to be removed after several years' use.

The idea that a septic tank will completely purify sewage or that it will never have to be cleaned out is incorrect. The tank that is properly designed will gradually accumulate sludge, and the discharge from such a tank will be far from pure, in fact, it is dangerous. Yet the septic tank is a good thing because it renders the sewage in condition so that it can be disposed of without creating a nuisance, or by means of a filter or subsurface tile it can be completely purified.

The discharge from many septic tanks is allowed to flow into small streams without objectionable results. For complete disposal we take advantage of a second type of bacteria that thrive in surface soil, where there is plenty of air and light. This is nature's method of purification. Waste materials that are buried just under the surface soil are soon broken down and purified. A few lines of ordinary 4-in. drain tile placed about 12 in. below the surface will take care of the discharge from the average tank. Allow about 30 or 40 ft. of tile to each person using the tank.

As to the type of tank to build, the simple rectangular tank seems to be giving as satisfactory results as any of the more complicated types. In designing a tank, allow about 4 or 5 cubic ft. per person using the tank; do not make the volume of the tank less than 25 cubic ft. for the smallest family. The use of an automatic syphon does not seem to be as necessary a part of such a system as once thought.

Provide either a baffle board at the inlet and outlet pipe or a tile arranged to discharge below the surface, to avoid breaking up the scum line.

In locating a septic tank place it a reasonable distance from the house. Fifty to 100 ft. is plenty and it can be located nearer without objection. Use regular sewer tile between the house and the tank; beyond the tank ordinary farm drain tile can be used, unless it passes near a water supply.

Plum Stocks

NEW York Experiment Station, Geneva, N. Y., has been conducting some experiments on different root stocks for plums. These experiments were begun in 1912. Six different stocks were tested, fifteen varieties of plums, commonly grown in New York, being used. According to U. P. Hedrick, the horticulturist, the results are as follows:

For vigor and productiveness, the Myrobalan is best for the Bradshaw, Grand Duke, Italian Prune, Lombard, Reine Claude, Shropshire and Drap d'Or. The Abundance and Burbank grow about equally well on Myrobalan and on peach stock. The Wild Goose, Pottawattomie, Forest Garden and Wayland, which are native American plums, will probably do best on Marianna stock, although they are quite satisfactory on Myrobalan. DeSoto does best on roots of its own species.

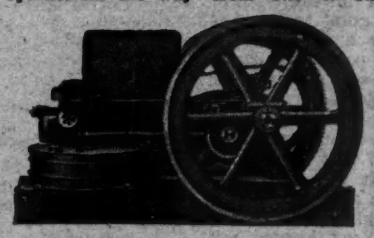
THE Pacific Northwest this past year exported 1,153,165 boxes of apples. Portland led with 688,653 boxes and Seattle was second with 464,512 boxes. These apples were sent to Great Britain, Amsterdam, Buenos Aires and other South American points.

Puts 5 H-P Engine on Your Place For Only $26.40

Ed. H. Witte, Famous Engine Manufacturer, Makes Startling Offer on New Witte Throttling-Governor Engine.

Farmers, now more than ever, appreciate the need of power on the farm and know they can make $500 to $1,000 additional profit a year with an all-purpose engine.

Ed. H. Witte, nationally-known engine manufacturer, has announced a new 5-horse power engine which burns either kerosene, gasoline, distillate or gas with a special regulator which enables it to operate all the way from two to six



horse-power. This new WITTE ENGINE has revolutionized power on the farm, as it handles practically every job with ease at a fraction of the cost of hired help. It is easily moved from place to place and so simple that a boy can operate it.

To introduce this new engine to a million new users Mr. Witte has arranged to put it on any place for a 90-day guaranteed test. Since it costs only $26.40 to take advantage of this sensational offer, Mr. Witte confidently expects every progressive power-user to soon be using a WITTE. Every reader of this paper who is interested in showing bigger profits and doing all jobs by engine power should write today to Mr. Ed. H. Witte, 2145 Oakland Ave., Kansas City, Mo., or 2145 Empire Bldg., Pittsburgh, Pa., for full details of this remarkable offer. You are under no obligations by writing.

KEEP WELL "A PEMCO SPRAY" Keeps Germs Away

PEMCO

The mechnical flushing out of the nasal passages prevents infection and disease and prolongs life as the nose is the most fatal portal of entry of infection into the body. PEMCO Nasal Spray is prescribed by leading physicians. It prevents colds and clears the head and nose. PEMCO is a solution of menthol, oil of eucalyptus and creosote in liquid petrolatum.

Special Offer For a limited time only—we will send a ONE DOLLAR bottle of PEMCO together with a famous oil atomiser valued at one dollar and a half for the small sum of $2.00. Send your order today.

PROPHYLACTO MFG. CO., 612 S. Canal St., Chicago

6.95 THE FINEST 25 CAL. AUTOMATIC MADE

25 VAL. TRIPLE SAFETY

The highest type 25 cal. automatic made—with three safeties—is this new improved vest pocket model of drop forged blue steel, very well made. Shoots seven shots. Our No. CB119 at only $6.95.

20 Shot 22 cal. double safety military model, 10 shots with extra magazine making 20 shots in all. Our No. CB120, special at $9.75. Both sizes shoot any standard cartridge. PAY POSTMAN ON DELIVERY. Give postage.

Money back promptly if Not Satisfied.

CONSUMERS CO., Dept. CB, 1265 Broadway, N.Y.

Oh, You Skinny!

Why stay thin as a rail? You don't have to! And you don't have to go through life with a chest that the tailor gives you; with arms of childish strength; with legs you can hardly stand on. And what about that stomach that flinches every time you try a square meal? Are you a pill-feeder?

Do you expect Health and Strength in tabloid form — through pills, potions and other exploited purges? You can't do it; it can't be done.

The only way to be well is to build up your body—all of it, through Nature's methods—not by pampering the stomach. It is a fact to-day that in making you a failure, it's that poor smuggled body of yours; your half-sickness shows plain in your face, and the world says "unhealthy pale." So be HEALTHY — STRONG — VITAL. Don't think too long; send a ten cent piece (dime) to cover mailing expense, and I'll tell you Tobacco and my book, "Promotion and Conservation of Health, Strength and Mental Energy," written by the strongest physical instructor in the world.

LIONEL STRONGFORT
Physical and Health Specialist
Dept. 884, Newark, N. J. (Founded 1901)

STRONGFORT The Perfect Man

That Association of Yours

(*Continued from page 22.*)

"Sure, and that's aisy," agreed Tim. "It don't be costin' so much to be packin' good apples as poor wans."

"And that ain't all," said John, "we are going to handle those odd varieties different."

"Faith," replied Tim, "I saw yez handlin' thim different with the ax an' saw when I waz by yere place the ither day."

"That's true," smiled John, "still we'll have a lot of odd varieties. We're going to all try and draw in our Fall Pippins on the same day so that when the Superintendent gets started he can make a job of 'em and quit. Then, we had 26 varieties, too, that didn't have over 10 barrels of each in the whole association. We are goin' to run them odds and ends over a still table, not put them on our power grader at all. Then, too, we are goin' to change around our grader some so that fruit comes in at one end and keeps going steady to the other and don't have to be handled over two or three times."

"It was appealing to me that fruit waz goin' stiddy enough through that packin' house last fall," said Tim.

"Yes," agreed John, "but with these changes we figure we could have packed three or four thousand barrels more. That would have meant more barrels to spread the cost of manager, bookkeeper and overhead over. The low cost associations were the associations with most fruit."

"We are goin' to take in three or four more members so as to run to capacity. Shall I propose your name, Tim?"

"I'm not that sure of it yit," said Tim. "I want to be hearin' more about it."

"They were talkin' about you and allowed you was a pretty good sort of a fellow."

"Uh-Huh," said Tim, for he was thinking.

PETER LENSON.

Average cost of packing season of 1922-1923 compiled by the Central from Actual Costs of 21 Locals whose figures have been completed:

	%	Cost per Barrel—Based on packed fruit and culls.	Based on packed fruit only.
Labor	52	$ .194	$ .232
Overhead (interest, taxes, insurance, depreciation)	20	.074	.09
Manager	11	.042	.05
Operating (stencils, records, telephones, etc.)	8	.029	.035
Trucking	5	.02	.023
Bookkeeping	4	.015	.02
Totals	100	$ .374	$ .45

All rights reserved by Western New York Fruit Growers' Co-operative Packing Assn., Inc., Rochester, N. Y.

Cherry Land in Colorado

by W. O. Fletcher

CHERRY land in Colorado extends along the Lincoln Highway from Denver to the Wyoming line. Here among the pretty valleys and foothills and mountain spurs will be found the attractive checkerboard effect produced by the numerous cherry orchards. Several large holdings will be found in the vicinity of Fort Collins, while in Loveland, the "Gateway" to Estes Park, will be found the most extensive holdings in the state. Extending along the highway from Loveland to Estes Park, a distance of 10 miles, are many fine cherry orchards. A tree census taken in 1922 showed 68,000 bearing trees, but in the past two years an additional 60,000 trees have been planted, making the total acreage at present 128,000 trees, so within four years, the time it takes an orchard to come into bearing, there will be a very heavy tonnage produced in the district. Most of the trees are planted 18 by 18 or 16 by 18, which distances seem to be about right under the growing conditions found in eastern Colorado.

The varieties planted are the Montmorency, Early Richmond and English Morello. These are planted in the ratio of 7-1-2. The later plantings show an increased ratio in favor of the Montmorency and a gradual elimination of the Richmond. The Morello, however, is holding its own. Very few sweet cherries are grown in the region.

The first cherry trees set in eastern Colorado were planted about 35 years ago. They were established in home orchards throughout the district. Experience showed that the soil and climate of eastern Colorado were especially adapted to red cherry growing. About 1910 there was a boom in the planting of the cherry in Colorado, with the result that the market became glutted. Heavy plantings had been made without a development of the proper market for the increased tonnage. In 1911, however, a broker came on from Chicago and began to experiment with the canning of these cherries. The Fruit Products Co. was established, capitalized by home people. It canned nearly a million and a half pounds. Since then the canning industry has developed and a number of factories are now running in the district. A considerable portion of the tonnage is sold fresh, especially the early tonnage and the very late tonnage. The total crop canned, sold at orchards or marketed in crates for 1922 was 2,500,000 lbs.

Some of the leading growers in the Loveland district are: C. G. McWhorter, Smith Brothers, J. F. Fink, Alfred Wild, H. A. Meyers, A. V. Benson, W. L. King, Homer Walt, Conrad Kechter, the Buckingham Orchard of Boulder and H. G. McClelland of Fort Collins, a well-known grower. The size of the orchards range from 5 to 75 acres in extent. Some of the trees bear as high as 200 lbs. and there are records as high as 400 lbs. The average yield per tree, however, is much less than these figures.

The cherries begin to mature in early July, the Early Richmond being ready to pick about July 10th. The Montmorency comes on about two weeks later and is ready the last of July and the early part of August, while the Morello is ripe in early September or late August. The picking is generally done by families who move into the district and camp during the season. This gives a combined vacation and an opportunity for the family to get some needy cash. The price paid the pickers varies considerably from year to year, being about one and one-fourth cents a lb. The price paid by the canneries also varies. Formerly the price was only three to three and one-half cents a lb. Later the canneries have been paying about five and one-half cents a lb., depending upon the market for canned cherries. For canning purposes, the cherries are picked without the stems but for commercial purposes, for shipping in crates, etc., the cherries are generally clipped from the trees. This increases somewhat the cost of harvesting.

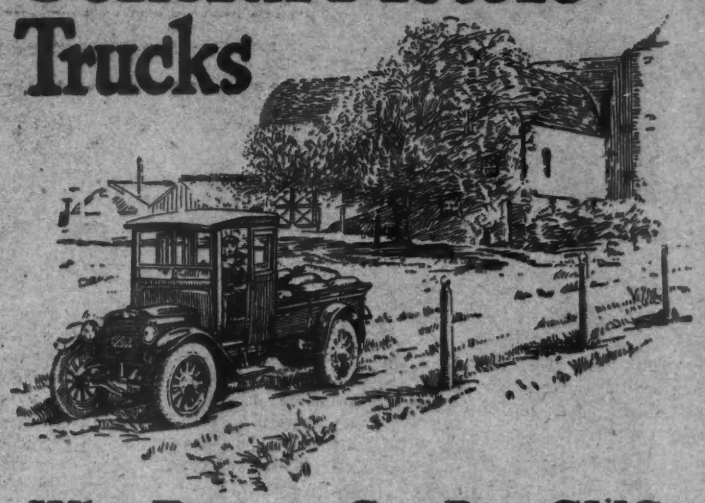
Quite a proportion of the tonnage can be sold at the orchards due to the tourist trade. Being on the main highway of one of our national parks, the tourist trade is relatively heavy. Many of these tourists come from districts where little or no fruit is grown and they eagerly purchase a very attractive bright red fruit found along the roadside.

How I Grow Raspberries

by G. H. Waterman, New York

I PLANT red raspberries in rows, about four feet between the rows. Keep the suckers, however, out so the canes will not be closer than six inches in the row. Cultivate the same as for potatoes and be sure to keep all the grass and weeds out. Pinch back the tips of canes when about 2½ feet high to make them branch. This will more than double the amount of fruit you will get. I set a post every 16 or 20 feet in the rows and stretch a strand of smooth wire about 2 feet from the ground. This helps to keep the canes upright and prevents the pickers from going through the rows and breaking down the young canes.

General Motors Trucks



Why Farmers Can Buy GMC Trucks At Such A Low Price

Because of the remarkably low prices at which GMC trucks are sold—when compared dollar for dollar with the quality of each part—farmers invariably ask:

"How is it possible to build and sell GMC quality at such a reasonable list price?"

There are two reasons why.

First, because GMC trucks are built by the General Motors Truck Company, a unit of the General Motors Corporation.

Second, because of the way in which the list price of GMC trucks is established and the basis upon which they are sold.

As a part of the largest automotive concern in the world, the builders of GMC trucks are able to make economies of purchase, savings of manufacture and of general overhead expenses, not possible in a smaller organization. The actual cost of manufacturing a GMC truck is unquestionably the lowest that can be obtained.

GENERAL MOTORS TRUCK COMPANY
Division of General Motors Corporation
PONTIAC, MICHIGAN

GMC

GMC Trucks are "Seven Steps Ahead"

After the fruit is picked, cut out all the canes that had berries on and burn; then scatter about a handful of nitrate of soda on the upper side of each row. I use about a handful to every 8 or 10 feet. Do not get it too close, say 1 or 2 feet, and work in the soil with hoe or cultivator. This will give you a rank growth of canes for the next year. I spray with lime sulphur about 1 to 12 in the spring before the growth starts.

I use the same general method with blacks except that I keep them in hills 4 feet apart and use 2 wires instead of 1. The top wire I put about 4 feet from the ground, tying the canes to the wires. Do not forget to pinch off the tips.

Big Apple Exports

PORTLAND, Oregon, now ranks second as a port in the Pacific Coast, being next to San Francisco, and surpassing that city in exports. During the past year Portland exported alone 750,000 boxes of apples, and is rapidly becoming one of the leading apple export cities of the United States. The Port of Portland Commission, The Portland Chamber of Commerce and the fruit growers of the northwest are working out a plan whereby the best exporting facilities possible can be provided.

Pecan Scab

PECAN scab, a serious fungus disease which attacks the twigs, leaves and nuts of the pecan, can be controlled by spraying with Bordeaux mixture. The spray should be put on, however, before the disease appears, not to be used as a cure. During wet seasons, the spray should be given every two or three weeks. The 4-4-50 formula gives good results, and the addition of one lb. of resin fish oil soap to each 50 gals. of the preparation, is good to use as a spreader. The spray should be put on during the months of May, June and July. The disease first appears on the leaves and twigs as round spots, somewhat raised, varying in size, some being about one-fourth of an inch in diameter. The color of the spots is dark green. On the nuts the disease takes much the same appearance as it does on the leaves, but the areas infected gradually will become sunken.

Pre-Cooling of Pears

THE American Association of Ice and Refrigeration states that the history of fruit handling in the Yakima Valley shows not only the value of cold storage but also the value of pre-cooling. Before Bartlett pears were pre-cooled the losses annually were sufficient to build a cold storage plant in the Valley.

Our leading fruit men are now recommending the pre-cooling of pears and early apples. The paper in which pears are wrapped has an insulating effect and seems to retard the rapid cooling of pears in the center of packages. The method now followed by the leading shippers is to pre-cool pears loose in boxes and then pack them in a room which is not over 40 deg. in temperature, thus preventing the sweating of pears while they are being packed.

No. 1730. Attractive Blouse.

Cut in sizes 16 years, 36, 40 and 44 inches bust measure. Size 36 requires 1⅛ yards 36-inch material.

No. 9922. Smart Blouse.

Cut in sizes 36, 38, 40 and 42 inches bust measure. Size 36 requires 1⅛ yards 36-inch material.

No. 1714. New Type Jacquette Blouse.

Cut in sizes 16 years, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 36 requires 2 yards 36-inch material with ⅛ yard 27-inch contrasting and 1 yard ribbon for tie strings.

No. 1785. Two-Material Dress.

Cut in sizes 16 years, 36, 38, 40 and 42 inches bust measure. Size 36 requires 2⅛ yards 36-inch material with 1⅝ yards 42-inch contrasting.

No. 1662. Slenderizing Lines.

Cut in sizes 36, 38, 40, 42, 44, 46 and 48 inches bust measure. Size 36 requires 4⅜ yards 44-inch material with ⅛ yard 18-inch contrasting.

No. 1802. Attractive Dress.

Cut in sizes 36, 38, 40, 42, 44, 46 and 48 inches bust measure. Size 36 requires 5 yards 40-inch material with ⅝ yard 20-inch contrasting.

No. 1801. Neat Style.

Cut in sizes 16 years, 36, 38, 40 and 42 inches bust measure. Size 36 requires 3⅛ yards 36-inch material with ⅝ yard 36-inch contrasting.

No. 1787. Practical Porch or Bungalow Apron or Dress.

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No. 1789. Smart Dress.

A glance at the diagram will give you an idea how easily this smart dress is made. Cut in sizes 16 years, 36, 38 and 40 inches bust measure. Size 36 requires 2 yards 36-inch material with 6¼ yards of binding.

No. 9461. Cute Rompers.

Cut in sizes 1, 2 and 4 years. Size 4 requires 1⅝ yards 36-inch material with ¼ yard 18-inch contrasting and 2⅝ yards of binding.

No. 1350. Dress with Pantalettes.

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Apple Scald Control

(*Continued from page* 12.)

ing Winesaps for the May and June market when other apples are usually gone; but scald has often thwarted this plan or caused them to suffer loss on such late-kept fruit. In 1922 one of the largest shippers in the Wenatchee district packed 40 carloads of extra fancy Winesaps in oiled wraps and held them in cold storage at Wenatchee as a test for this late market. Fruit from the same orchards packed at the same time and stored under the same conditions except for the wraps used began to show scald in the early part of March and was moved to market by the early part of April. The oiled wrap apples remained free from scald and in fine condition, and shipments from this lot were started the latter part of April. The prices received on the New York auction for the first six cars of this late shipment (total shipments reported at the time of writing) averaged $3.02 por box f. o. b. Wenatchee. On some of the sales the oiled wrap fruit brought a premium of $1.25 per box over similar fruit in common paper sold on the same market at the same time.

In another case a car of large sized Staymans in oiled wraps was held in Wenatchee until early April and then forwarded to New York. The inspector's report showed no scald and practically perfect condition upon arrival and the receiver wired that it was the finest car of Staymans he had ever seen on the New York market so late in the season. Similar results attended shipments to Boston and other markets.

The results from the oiled wraps on the 1922 crop have been so satisfactory that several of the large marketing organizations have put out statements advising their use the coming season. In the Wenatchee district the orders for oiled paper for the 1923 crop are exceeding those for common wraps and large quantities are likewise being ordered in Yakima, Hood River and other districts of the Northwest. Some shippers plan to use oiled wraps exclusively while others will use them only on the late-keeping varieties. The present indications are that the demand for oiled paper will exceed the supply. The cost of the oiled wraps is 1 ct. to 2½ cts. per box greater than the ordinary wraps, but with claims and allowances for scald eliminated and the fruit in better condition to hold for a satisfactory market the additional cost is considered a good investment.

The oiled wrapper will obviously be of greater value to the people who use it, but it should be of benefit to the whole apple industry and to the consumer as well. If scald can be prevented on a considerable part of the storage apples it should give opportunity for a wider distribution and an extended season and should result in greater consumption of apples and less spoilage.

Handling Problem

(*Continued from page* 10.)

ther contribution made by the congestion which unavoidably takes place is indicated by reports of the Department of Agriculture on the handling process. Produce-carrying railroads have pier stations on the lower west side of Manhattan which are practically market places as well as unloading points, but the increase of traffic has compelled utilization of New Jersey yards and freight houses for overflow receipts. Supplies unloaded there have to be trucked to Manhattan for primary sale, at a cost per carlot ranging from $28 to $50.

In the central market space is limited, and a public trucking service has to be maintained for transferring supplies from the piers to jobbers' trucks. This service performs a "shuttle" movement of less than 500 yards, for which the average charge is $20 a car. The operation, however, is not merely haulage, but distribution and classification. How congestion delays it is illustrated by the fact that one truck, the movements of which were observed, distributed 95 baskets of lettuce in eleven hours. The shuttle operation, by which goods are transferred from wholesaler to jobber, is perhaps the most wasteful one in the entire handling process. But the cost of trucking produce out to the jobbing markets is also heavy, ranging from $37 to more than $60 a load. Repeated handling of produce in bulk, an unavoidable necessity under present commercial methods, means additional costs at every step.

Although the situation at New York shows an exceptional degree of waste and confusion in the distributive process, it is by no means peculiar to that city. The conditions revealed by the Department of Agriculture are common, in varying degrees, to all the large distributing centers. Proposed remedies hinge mainly on the feasibility of doing away with the system of selling produce on the basis of bulk inspection, and replacing it by a method of sale by certified sample. This plan would permit decentralization of the handling process, thus avoiding congestion and use of land of excessive value. It would cut down repeated handling.

That standardization is feasible to a great extent, is well established by the growth of the practice in recent years. Many important perishable commodities are now being graded and uniformly packed for sale by sample. Officials of the Department of Agriculture point out, however, that there are still many difficulties in the way of standardization of perishables for price-making purposes. It should not be too readily assumed, they say, that the recent promulgation of numerous state and Federal grades gives an adequate basis for certified sampling. They estimate that, at the present time, probably about one-fourth of the supply of fruits and vegetables could be made available for sale on the basis of sample inspection, while the rest would have to be handled for a time on the bulk inspection plan.

Handling Methods Being Studied.

Resort to sample sale as far as it is now possible, and provision of better facilities for converting carloads into assortments for the jobbing trade, are consequently the recommendations made. As a means of improving handling methods at bulk markets, the department is working on a platform system of distribution and consolidation between carlots on one side and motors on the other, by means of small mechanically operated conveyors. Inquiries are also being made with a view to seeing what might be done toward the integration of delivery points, primary or wholesale markets, and secondary or jobbing markets. It is thought economies could be achieved in this direction which would minimize handling and cartage.

It is manifest that several changes of method must take place if margins between producer and consumer are to be materially reduced. Standardization is required from the producer, so that produce, particularly vegetables, will come to market in a less varied assortment of packages, sizes and qualities. Wholesalers and jobbers must co-operate in devising means to increase the proportion of the supply which can be sold on sample. Terminal market authorities must introduce economies in trucking and handling, so that time and space can be employed to better advantage. Railroads must improve their transfer and delivery facilities. The costliness of existing methods, and the constant danger of a breakdown in large centers, increase the urgency of the need for improvement. With better distributing facilities, the consumption of fruit and vegetables could be greatly increased, to the advantage of the producer and to the general benefit of the nation.

NEW YORK State Experiment Station has developed a new early black cherry called the Seneca, which is very promising.

The Japanese Persimmon

by J. E. Fitzgerald

THE Japanese Persimmon when first introduced in this country, did not become very popular, but after it was grown several years and we learned more about it, it has fast been proving one of the most popular of all fruits, owing to its wide extent of season. If you have some or all of the known varieties you can have persimmons on the trees from the middle of August till Christmas, and if gathered and stored in a dry room you can easily keep them until February or later. As they are grafted on the old time native persimmon roots they can be grown over a large area, anywhere the natives will grow. This is another great advantage of the fruit. It will grow most anywhere the peach will or lots other staple fruit. If you have old land that is about worn out, first plant it in cow peas or beans and allow the vines to be plowed under, and you can set this land in Japanese persimmons. Take great care in setting them and cultivate them until about the first of July. Then allow the weeds or peas or whatever comes up around the trees to stay until late in the fall; then turn this vegetation under and it will help fertilize your persimmons. They do not make a large tall tree but rather incline to spread and look scrubby, but when they are about three years old they will surprise you by bearing a few of the most beautiful fruit you ever saw grow. There are several different varieties—some can be eaten when they are about grown and still very firm, and some of them are very astringent and cannot be eaten until soft.

A Very Attractive Fruit.

There are trees here that are 20 years old and are not over 12 or 15 ft. in height and about that wide, that bore 5 or 6 bus. this season and some five or six years old, no taller than an ordinary man, that had from 3 to 4 bus. on them. They are the prettiest fruit on trees that is grown outside the tropical regions. The leaves are a very dark green and a broad thick leaf. It is a nice tree to plant in one's yard as it is very ornamental, and when the fruits are grown some are a dark red, some light red, and some orange. People come many miles to see this orchard, and talk about it being so pretty, equal to an orange grove, they say.

These persimmons are unlike the wild or native ones as they do not require a frost to make them sweet. Some are as soft and sweet in early September as the old native ones are after a big frost. There are some that can be peeled and eaten like an apple as soon as they are grown. This variety is a dark fleshed kind. When allowed to get soft, it looks almost like it is decayed as it is so dark on the inside, but it is very delicious. The red kind are never dark but are a light red or an orange on the inside and are very sweet. One kind in particular is extremely juicy and contains very little meat. This kind is easily distinguished from the other as every fruit has a distinct ring around them, as if they had had a string tied around them. This is the Tamopan, a large yellow persimmon. The Eureka is a medium-sized red persimmon, a very heavy bearer, and one that rarely ever fails to make a big crop after it has once reached the age to bear, the third year after setting. There is a Chinese variety that grows a very tall tree. They say in China, its original home, they often reach 75 ft. in height and as large around as a man's body. These produce the largest fruits known but do not bear very many to a tree. Some of these will lack but a fraction in weighing a pound per fruit.

Time of Harvest.

The persimmons should all be gathered along in October or early November and stored in a dry room and allowed to ripen in the house. The taste is just as pleasant as when ripened on the tree. They can be shipped to most any distance if you will get them while firm and wrap each fruit in paper and pack in a box or in little baskets and then in crates. This fruit is fast coming to be the most popular fruit and we predict that in a few years it will be so widely known and liked that it will be shipped in carlots like bananas and apples. It will prove to be a great and favorite Christmas fruit.

Book Review

WE have commented editorially on a new book on co-operative marketing entitled, "Co-operative Marketing: The Golden Rule in Agriculture," by Herman Steen. This book is a distinct contribution to our literature on co-operative marketing. It will be of great service to those who want to know the history of the co-operative movement in this country, who want to study producers' contracts, systems of financing associations, pooling systems, etc. No matter whether the farmer be interested in cotton, tobacco, dairy products, livestock, grain, wool, fruit or vegetables, he will find the material that he is looking for in this book. If he wants to know about great co-operatives such as the California Fruit Exchange, the Dairymen's League of New York, the United Grain Growers of Canada, the California Poultry Producers, and dozens of others too numerous to mention, he will find the material that he is looking for in this book.

Mr. Steen, the author, in the latter chapters has given a study of the principles of co-operative marketing. Mr. Steen is a believer in commodity marketing. He is also a great believer in the centralized management and is opposed to the unit plan of organization. In this he will find considerable opposition among students in co-operation and among many who have had years of experience in the active management of large co-operatives. There is a feeling by some that centralization has been carried too far, that the true principles of democracy have been lost sight of, and it is well known that several of the largest co-operatives in America who have carried centralization to extremes have been having great difficulties in the past few months, the entire management having been removed and steps having been taken in each case to bring about less centralization. Nevertheless, there are many who will, of course, agree heartily with Mr. Steen.

Regardless of whether you are in favor or opposed to centralization, the book should be in the hands of every student in the co-operative movement. It contains a vast amount of information which would be very difficult to obtain in any other way. The book consists of 356 pages, printed on good paper, nicely bound and can be obtained through the American Farm Bureau Federation offices in Chicago for a dollar. The American Farm Bureau deserves a great deal of credit in fostering literature of this kind and putting it out at a price which will make it possible for everyone who desires the book to secure it.

The Turley Apple

FRUIT growers in Indiana are watching with considerable interest a new apple, originated in that state, known as the Turley apple, according to "Hoosier Horticulture." This apple was first mentioned in 1909 and is a Winesap seedling. It is believed to be worthy of trial in Indiana. It is said to be a beautiful apple, large, dark red, smooth and uniform. The quality is good, being of a milder acid than the Winesap, but is probably not as good a keeper. The tree is said to be a good, strong, vigorous grower and very productive. In a short time horticulturists will know what this apple will do commercially as it has been planted somewhat extensively.

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Harvesting and Storage Hints

by C. L. Burkholder

HAVE you ever handled a tall ladder on a windy day? Many a ladder is broken and many a tree damaged because every now and then, in the best of regulated orchards, a ladder gets away and goes crashing to the ground. Try bolting a couple of iron tips on the bottom of the ladder. They provide an opportunity to sink these into the ground and to use both hands above the head to control the movement of the ladder. They also make it much easier to raise a ladder. Cherry pickers, especially women and girls, often refuse to pick on ladders without iron tips after working on them. These iron points keep the ladder from tipping and prevent any possibility of the ladder sliding away from the tree when the picker is near the top. These tips are easily and cheaply made from a 12-in. piece of old buggy tire or from heavy strap iron. Two bolts serve to fasten the tips to the ladder. The ends do not need to be sharpened.

Steps Instead of Rungs in Picking Ladders.

It is hard work to pick all day from the ordinary straight rung ladder. This is especially true when pickers

Picking ladder with 3-inch steps instead of rungs.

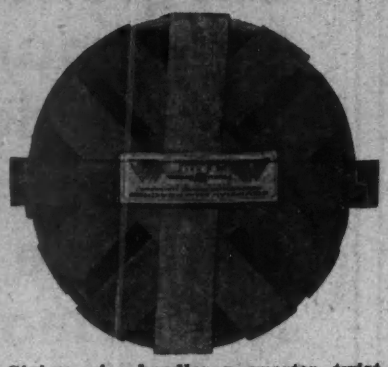
do not provide themselves with heavy soled shoes. Many growers make their own ladders or have them made at local lumber yards and when this is the case a 3-in. step can easily be substituted for the top rungs of the ladder. Ordinary rungs may be used on 6 or 7 ft. on the bottom of the ladder and also the top three steps if desired. The steps give a 3-in. flat surface to stand on for the majority of the work. Twenty-two foot ladders made of bass wood with 3-in. steps and drawn in to about 8 in. in width at the top make excellent apple picking ladders. Ladders built with part steps instead of rungs are especially liked by cherry pickers.

Binding the Lids on Bushel Baskets.

More and more fruit is being shipped each year in bushel baskets with wire handles. After the slat across the lid is slipped under the handles they are commonly bent in over the lid. A much better method is to give the wire handle a quarter twist with wire pliers. This not only binds down the lid firmly against the top of the basket but the wires cut into the edges of lid slat and prevent the lid sliding back and forth across the surface of the fruit.

Care of Apples in Common Storage.

The best method of handling apples in the home cellar for late winter use is to wrap each fruit in a square of newspaper. Grimes Golden and Jonathan will keep much later handled this way. Always keep apples in closed bins, boxes or barrels. It is a good plan to line the packages with paper and in the absence of tight lids or cov-



Giving wire handles a quarter twist prevents the lid from sliding back and forth over fruit.

ers tie newspapers over the top of the barrel or box. Open doors and windows when cool nights come in the fall. Do this in the evening and close up all openings the first thing in the morning. Keep the cellar closed night and day during warm spells.

Cold Air Ducts for Common Basement Storages.

There is no means of bringing the cold air in at the floor line of the common cellar. The cold air has difficulty in moving in through the basement windows because they are usally located near the roof of the storage and the warmer air in the cellar has a tendency to set up an outward current of air through these openings. Where there are a number of windows in the basement wall a portion of them can easily be converted into cold air ducts. This is done by building a chute around the inside frame of the window, and extending it down within a foot of the cellar floor.

Florida Banana Growers

by W. E. Bolles

BANANA growers in Florida have a better opportunity to make money than ever before, says W. E. Bolles, of Oldsmar, Fla., secretary of the Florida Banana Growers' Association. He has received information from a correspondent in Jamaica who reports that the banana business in the West Indies, Central and South America appears to be doomed on account of the terrible tropical blight known as Panama disease, which has ruined thousands of acres planted to the yellow Jamaica banana, the common imported variety. Jamaica has been exporting 10,000,000 to 15,000,000 bunches a year, mostly into the United States, and the growers in the tropics have no illusions on the subject—they see the approaching end of their profitable business, because nothing has been found to control or cure this destructive enemy of the banana.

Florida is free from it for three reasons. The variety of banana which is particularly subject to the blight is not planted in Florida at all. The mild, sub-tropical climate of Florida does not provide the natural conditions which make the disease possible, and the excellent measures of protection enforced by the Florida State Plant Board and its active corps of inspectors, backed by the vigilance of the county agricultural agents and the hearty co-operation of the Florida Banana Growers' Association have combined to prevent trouble.

The varieties of bananas grown commercially in Florida with success are the Cavendish, Hart, and Orinoco, all of which seem to be immune to the Panama disease in Florida, because that state does not have the intense heat of the equatorial regions necessary to propagate the banana blight. South Florida is going into the banana growing business on a larger scale this season than ever before.

Export Apples

GROWERS are perhaps interested to know what markets in Europe receive most of our apples. The Port of Seattle has prepared figures to show where the tonnage from that port was sent this past season. The destination of fruit from this port will be typical of the destination of fruit sent from such ports as New York and Portland.

Boat, Date and Destination.	Boxes.
1922—	
Kinderdyk, Sept. 22, London	4,038
Gothic Star, Oct. 7, Glasgow	8,652
Liverpool	16,958
Dinteldyk, Oct. 20, London	2,762
Southampton	3,385
Nebraska, Oct. 25, Glasgow	6,680
London	3,954
Liverpool	10,341
Southampton	5,621
Tudor Star, Nov. 1, Liverpool	7,692
Glasgow	18,549
London	3,576
Cardiganshire, Nov. 9, Liverpool	2,503
London	3,275
Rotterdam	79
Deerfield, Nov. 19, New York	22,871
Narenta, Nov. 21, Southampton	5,619
Glasgow	9,200
Liverpool	9,210
London	7,957
Tuscan Star, Nov. 23, London	21,343
Glasgow	10,184
Liverpool	9,542
Hull	7,793
Moerdijk, Dec. 2, Southampton	4,214
London	3,889
Eemlijk, Dec. 9, London	8,636
Roman Star, Dec. 26, London	10,484
Liverpool	8,837
Glasgow	8,604
1923—	
Nichteroy, Jan. 4, London	7,324
Glasgow	8,421
Southampton	7,076
Liverpool	10,579
Loch Katrine, Jan. 9, London	1,491
Liverpool	4,976
Glasgow	4,756
Royal Star, Jan. 19, Glasgow	5,593
London	20,052
Liverpool	9,227
Highland Heather, Feb. 1, London	9,808
Glasgow	8,827
Liverpool	15,350
Southampton	6,512
Optional*	2,999
Optional**	5,924
Optional***	1,512
Neponset, Jan. 31, New York	9,423
Kinderdyk, Feb. 15, Southampton	15,548
London	3,094
Gothic Star, Feb. 20, London	24,518
Liverpool	6,291
Glasgow	21,646
Optional*	31
Loch Goil, Feb. 22, Liverpool	10,897
Foreign shipments	443,029
New York	32,294
Total	475,323

*Glasgow or Southampton. **Liverpool or Glasgow. ***London or Liverpool.

Pennsylvania Apple Orchards

THE Pennsylvania State College and State Department of Agriculture have published some interesting data on a survey which was made of the Pennsylvania apple industry. It goes to show that two-thirds of the sod orchards and most of the cultivated orchards of the state are fertilized. Most of the orchards were manured, the average being from 5 to 10 tons per acre every three years. Most growers also use commercial fertilizers, applying them every year prior to May. The usual mixture is acid phosphate and nitrate of soda, spread at the rate of 10 to 15 lbs. per tree.

The effect of fertilizers on Pennsylvania orchards is interesting. Orchards which were in sod and which were fertilized had 48 per cent of the trees in good condition, 42 per cent in medium condition and 10 per cent in poor condition. Sod orchards without fertilizer had only 20 per cent of the trees in good condition, 27 per cent in medium and 53 per cent in poor condition. Cultivated orchards with fertilizer showed 71 per cent in good condition, 27 per cent in medium, while only 2 per cent were in poor condition. Cultivated orchards without fertilizer had 19 per cent in good condition, 43 per cent in medium, while 38 per cent were in poor condition. Summing up these results, it would show that in the fertilized blocks 62 per cent were in good condition, 33 per cent in medium and only 5 per cent in poor condition, while in the unfertilized blocks we find only 20 per cent in good condition, 31 per cent in medium condition, while 49 per cent were in poor condition.

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Ruggedness—fleetness—safety—roadability—ease of driving and riding—remarkable economy. All are *provable* Speed Wagon factors, and reasons why there are nearly 100,000 Speed Wagons in service.

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